

R-3825-4

TECHNICAL MANUAL

ILLUSTRATED PARTS BREAKDOWN

J-2 ROCKET ENGINE

(ROCKETDYNE)

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Underlined titles denote primary systems.

SECTION I

INTRODUCTION

1-1. This manual is one of the R-3825-series technical manuals prepared to provide official Rocketdyne field support documentation for the operation and maintenance of the J-2 Rocket Engine, Part Number 103826, Serial Numbers J-2039-1, J-2046, J-2056, J-2062, and J-2075 through J-2152, and its related ground support equipment, designed and manufactured by Rocketdyne Division, Rockwell International, 6633 Canoga Avenue, Canoga Park, California 91304. The information in these manuals was prepared by Logistics Product Support Department of Rocketdyne.

1-2. The manuals are used to best advantage when each manual is current and complete (see figure 1-1) and the purpose and scope of each manual is known. The manuals in this series, and the nature of the data each provides, are found in the contents and support function chart.

1-3. J-2 MANUALS--THEIR SUPPORT FUNCTIONS.

1-4. The contents and support function chart lists all J-2 series technical manuals, describes the support function of each manual, and lists the section titles of each manual. The chart also explains how the technical data in each manual relates to the support of the engine and its ground support equipment throughout a normal engine flow, as well as during unscheduled maintenance tasks. Information appearing in one manual is not duplicated in another. Thus, information on the description, operation, and maintenance of ground support equipment is in R-3825-5. However, the instructions for servicing the engine using ground support equipment are in R-3825-3 and R-3825-1B.

Manual	Contents and Support Function	Section and Title
R-3825-1 J-2 Rocket Engine Data	This manual contains a description and theory of operation of the engine, its systems, and its components; mass properties and design load criteria, including engine weight, gimbaled mass, center of gravity, and moment of inertia for the basic engine and its accessories; and customer connections. The manual serves to familiarize the reader with the design and operation of the J-2 engine and services as a training aid document.	I Description and Operation VIII Performance IX Mass Properties and Design Load Criteria X Electrical System Interface Data XI Instrumentation System Interface Data XII Customer Connections

Manual	Contents and Support Function	Section and Title	
R-3825-1B J-2 Rocket Engine Operating Instructions Supplement	This manual contains authorized field operating requirements that affect flight engines during their normal flow from engine receipt through vehicle launch, and those procedures recommended by Rocketdyne that support these requirements most effectively. All specific and general requirements for activities to be performed and acceptability criteria for these activities are included along with the limits, special constraints, safety precautions, and correct sequences required to satisfactorily accomplish the activities.	I	Operating Requirements
		II	General Requirements
		III	Operating Procedures
R-3825-3, Volume I J-2 Rocket Engine Maintenance and Repair	This manual contains requirements and procedures for handling; component removal and installation; cleaning; post-maintenance test requirements; the safety precautions to be observed; and information on the tools, materials, electrical power, and pressurizing agents necessary to perform the tasks.	I	General Maintenance and Repair
		II	Handling
		III	Component Removal and Installation
		IV	Post-Maintenance Test Requirements
		V	Preparation of Components Handler Equipment for Use
		VI	In-Place Tube Welding
R-3825-3, Volume II J-2 Rocket Engine Maintenance and Repair	This manual contains requirements and procedures for component bench testing and repair; the safety precautions to be observed; and information on the tools, materials, electrical power, and pressurizing agents necessary to perform the tasks.	I	General Repair
		II	Thrust Chamber
		III	Heat Exchanger
		IV	Heat Exchanger Antiflood Check Valve
		V	Oxidizer Turbine Bypass Valve
		VI	Gas Generator Control Valve
		VII	Fuel Turbopump
		VIII	Main Oxidizer Valve
		IX	Main Fuel Valve
		X	Oxidizer Bleed Valve
		XI	Fuel Bleed Valve
		XII	Augmented Spark Igniter Valve
		XIII	High-Pressure Relief Valve
		XIV	Four-Way Pneumatic Control Valve
		XV	Three-Way Pneumatic Control Valve
		XVI	Ignition Detector Probe
		XVII	Mainstage OK Pressure Switch
		XVIII	Armored Harness
		XIX	Integral Hydrogen-Helium Start Tank
		XX	Start Tank Support and Fill Valve

Manual	Contents and Support Function	Section and Title
R-3825-3, Volume II (cont)		XXI Start Tank Discharge Valve XXII Fuel Jacket Purge Check Valve XXIII Oxidizer Turbopump XXIV Propellant Utilization Valve XXV Flight Instrumentation Packages XXVI Spark Igniter Cables XXVII Thrust Chamber Exit Closure XXVIII Vent Port Check Valve
R-3825-4 J-2 Rocket Engine Illustrated Parts Breakdown	This manual contains related illustrations and columnar listings of all parts of the engine that can be replaced at field sites as determined by the maintenance concept; definitions and designations of source, maintenance, repairability, interchangeability, and usable on codes; information pertaining to retrofit modifications; identification of next-higher assemblies; and identification of reference designation numbers.	See table of contents for this manual.
R-3825-5, Volume I J-2 Rocket Engine Ground Support Equipment Maintenance and Repair	This manual contains a description of engine servicing, handling, and test equipment; procedures for performing maintenance and checkout tasks; and inspection and maintenance requirements tables.	I General Maintenance and Repair II Thrust Chamber Throat Plug Kit G3120 III Thrust Chamber Protective Pad 9016705 IV Electrical Checkout Console G1037 V Flight Instrumentation Checkout Console G1035 VI Data Recorder Console G3121 VII Engine Test Plates, Adapters, and Tools VIII Extended Range Vibration Safety Cutoff Set G1038 IX Pneumatic Console G3106 X Pneumatic Flow Tester G3104 XI Simulator Panel 9024480-11 XII Components Test Console G3107 XIII Automatic Inert Gas Arc Welding Set G3128 XIV Single Head Special Tool Kit G3127 XV Propellant Utilization Valve Voltage Adjust and Monitoring Test Unit 9025664

Manual	Contents and Support Function	Section and Title
R-3825-5, Volume II J-2 Rocket Engine Ground Support Equipment Maintenance and Repair	This manual contains a description of engine servicing, handling, and test equipment; procedures for performing maintenance and checkout tasks; and inspection and maintenance requirements tables.	I General Information
		II Gas Generator High-Low Temperature Cutoff Panel G1047
		III Outboard Engine Restrainer G4066
		IV Film-Cooled Diffuser G4070
		V Components Adapter Set 9016796
		VI Liquid Nitrogen Service Unit 2425000
		VII Electrical Interface Support 9024460
		VIII Spark Monitor/Overspeed Cutoff Panel G1045
		IX Component Slings
		X Spark Monitor Turbine Overspeed Cutoff Test Set 9024499
		XI Ignition Detector Set 99-9026355
		XII Components Maintenance Sets/Kits
		XIII Vibration Safety Cutoff Test Set 9024498
		XIV Hot-Gas Temperature Transducers NA5-27323T4 and NA5-27342T3
		XV Amplifier Mounting Panel 9024500
		XVI Thrust Chamber Diffuser Installing Tool Kit 9025144
		XVII Proof-Test Weights
		XVIII Engine Handling Slings
		XIX Turbopump Sling
		XX Propellant Inlet Duct Null Adjuster Set 9024540
		XXI Inlet Duct Support Frame Installing Tool Kit 9025150
		XXII Engine Handler G4064
		XXIII Engine Vertical Installer G4035
		XXIV Turbopump Maintenance Stands
		XXV Turbopump Maintenance Sets
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		XXVII Propellant Inlet Duct Handlers

Manual	Contents and Support Function	Section and Title
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	XXIX	Start Tank Installer 9016783
	XXX	Fluid Lines Interface Support 9020628 and Fluid Lines Interface Arm Support 9026988
	XXXI	Thrust Chamber Seal Balloon 9016720
	XXXII	Spark Igniter Cable Pressurization Tool Kit 9025425
	XXXIII	Engine Components Installers

1-5. INTRODUCTION SECTION.

1-6. The Introduction explains in detail how to use the manual and outlines the contents of each section. Abbreviations, repair codes, manufacturers codes, usable on codes, MD identification symbols, and the configuration changes--manual effectivity, are listed at the end of the Introduction.

1-7. **HOW TO LOCATE A PART.** To find a part, whether its number is known or unknown, follow the procedures indicated in figure 1-2.

1-8. **ABBREVIATIONS.** Abbreviations are used throughout this manual wherever practicable. See figure 1-3 for a list of these abbreviations.

1-9. GROUP ASSEMBLY PARTS LIST SECTION.

1-10. The Group Assembly Parts List, section II, consists of a tabulated listing of all parts required for the support of the engine at the maintenance level. The parts are listed in disassembly order, except where disassembly order does not apply, and keyed to an associated illustration by index numbers. The relation of each part to its associated part is indicated by indentation, by cross-reference note, or as attaching parts. Subassemblies and components, except for attaching parts, are listed immediately below their next higher assembly one

indentation space to the right. The complete description of the part includes, as applicable, footnotes, nomenclature, a Rocketdyne specification control drawing number, a manufacturers code, a reference designation, figure cross-references, quantities required for each next higher assembly, and usable on codes. To find the quantity required for a REF part, refer to the figure and index referenced in the description of the part.

1-11. **REFERENCE DESIGNATION.** Reference designations are assigned to electrical parts so that parts called out on wiring diagrams and electrical schematics can be easily traced and identified. The designation is included in the description of the part, such as (P123). In addition, a figure entitled Coupling Nut Gaskets and Closures for Electrical Plugs and Receptacles lists the reference designations in numerical order and relates them to a part number, the next higher assembly, and the index number of the other figures in which they appear.

1-12. **MANUFACTURERS CODE.** When a part manufactured by a contractor other than Rocketdyne is listed, an identifying five-digit numerical code is assigned to the description of the part, such as (MFD by 00000). See figure 1-4 for a list of manufacturers codes, including the corresponding names, addresses, and zip codes.

1-13. **USABLE ON CODES.** Alphabetical codes are assigned to parts that have limited usage on the engines covered by this manual. In addition, some system figures use multiple Units per Assy columns to identify parts usage for specified blocks of engines listed in the Description columns. Parts that overlap or have limited usage to these blocks of engines, are identified by a usable on code. When no code or multiple units per assembly columns are used, the part is usable on all engines covered by this manual. Figure 1-5 lists all the usable on codes contained in manual, the initiating MD number if applicable for the change, the applicable engine serial numbers or engine stage application, and the superseding MD number if applicable.

1-14. **COMPONENT INTERCHANGEABILITY.** Interchangeability and usage of parts are given in the Component Interchangeability List figure identified in the Table of Contents. Parts having an interchangeability status are indicated by a symbol in the Part Number column of the applicable figure. A footnote for this symbol refers to the Component Interchangeability List where the parts that may be used to replace parts on the engines are listed.

1-15. The Component Interchangeability List uses the word "All" in the Engine Usage column to indicate that a part is usable on all engines covered by this manual. Where interchangeability is limited, specific engines are listed.

1-16. NUMERICAL INDEX SECTION.

1-17. The Numerical Index, section III, is an alphanumeric list of all part numbers in the Group Assembly Parts List, section II. Opposite the part number are listed the repair code, the assigned index and figure in which the part appears, and the total quantity of parts listed in section II.

1-17A. **STANDARD PARTS.** Military or Rocketdyne standard parts, such as bolts, screws, washers, nuts, etc, are listed one time only in the Numerical Index. The figure number or figure and index number indicate the first listing of the part and the quantity reflects the total for that part as listed throughout the Group Assembly Parts List, section II. Military or Rocketdyne standard parts, such as valves, electrical connectors, seals, orifice plates, etc, are also listed. However, these

parts are listed, along with their assigned figure number(s), index(es), and quantities as many times as they appear in the Group Assembly Parts List, section II.

1-18. **REPAIR CODES.** Repair codes are assigned to parts to indicate the recommended repair or replacement site location. These codes are listed in the Numerical Index opposite the applicable part number. Field repairable parts will be maintained in the manual. Parts coded D1, D2, or D3 in the Repair Code column of the Numerical Index, section III, will not be maintained, but will remain in the manual for information only. The repair codes are divided into two parts, a letter and a numeral. The letter denotes the recommended site location at which the part may be removed and reinstalled/replaced. The numeral denotes the recommended site location at which the part may be repaired. See figure 1-6 for definitions of the repair codes.

1-19. CONFIGURATION IDENTIFICATION.

1-20. **EQUIPMENT CONFIGURATION.** The MD identification symbol and the equipment model designation indicate the configuration of the equipment and distinguish it from models incorporating different changes and from basic models. A basic, unchanged configuration of the equipment has no MD identification symbol. MD identification symbols are added as changes affecting configuration are incorporated into the equipment. The MD identification symbol is stamped on the MD plate, which is mounted near the engine nameplate.

1-21. **MD IDENTIFICATION SYMBOLS.** The MD identification symbol is a composite number representing all the changes affecting configuration (MD changes) that are incorporated or not incorporated into the equipment. The symbol represents a consecutively numbered series of MD changes. Any MD change, or series of MD changes, not incorporated is represented by an "X." Multi-digit numbers are underlined. Two figures together represent the limits of a series of incorporated MD changes. Figure 1-7 illustrates how MD changes incorporated in the equipment are represented by the MD identification symbol.

1-22. **MANUAL REFERENCE.** A reference that appears in the manual may refer to a series of MD changes or to an individual MD change; for example, "MD9" refers to MD1 through MD9, but "MD9 change" refers to the individual MD change 9. This latter type of reference, which is illustrated in figure 1-7, identifies separate sets of information required by differences in configuration. When an MD reference appears in this manual, examine the MD identification symbol on the equipment to determine which set of information is applicable.

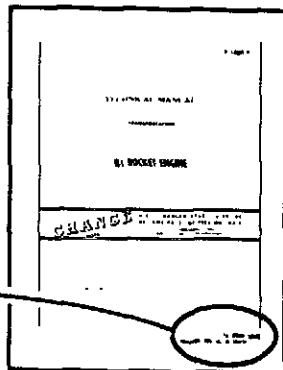
1-23. CONFIGURATION CHANGES--MANUAL EFFECTIVITY.

1-24. All approved ECPs and associated MD numbers that are applicable to nonexpended flight engines and their spares, are listed in figure 1-8. The date in the last column is the publication date of the manual during which the change made by the ECP was incorporated. When N/A is entered, the ECP does not change the date in the manual. Engine configuration information and serial number allocation are in R-5788, Saturn J-2 Configuration Identification & Status Report.

USE YOUR MANUAL ONLY IF CURRENT AND COMPLETE

Manuals that are not current and complete are not authoritative documents and are not to be used. The following outlines the method for determining whether your manual is current and complete.

A. DETERMINING CURRENCY. To be sure that yours is the latest issue of the manual, refer to Configuration Identification & Status Report, which is revised monthly and lists the technical manual numbers, titles, unincorporated supplements, and latest change or revision dates. Your manual must have a title page with the same or later date than the date shown in the Configuration Identification & Status Report. Your manual must also include the unincorporated supplements listed in the Configuration Identification & Status Report, or if your manual is later than shown in the report, the unincorporated supplements listed in the Manual Data Supplement Record in your manual. If your title page incorporates two dates as illustrated below, compare the change (lower) date. If your manual is not current, obtain a current copy through your technical manual supply system.



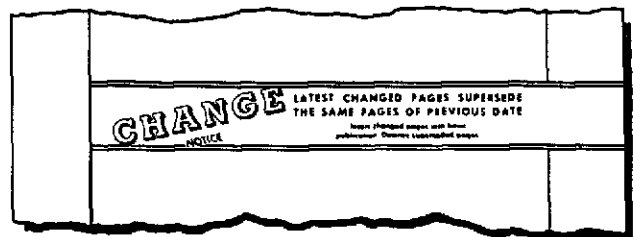
B. DETERMINING COMPLETENESS. To be sure that your manual is complete, make a page-by-page comparison of its pages to those listed in the List of Effective Pages. The List of Effective Pages, which shows the change status since the basic issue or last revision, is found on the alphabetically lettered page(s) immediately following the title page. All pages, except supplements, are

listed with their issue dates. Manual pages that are dated must have the same date as that appearing in the List of Effective Pages for that page. Unchanged pages are listed as "original" and are not dated.

HOW TO KEEP YOUR MANUAL UP-TO-DATE

As design changes are made to the rocket engine and ground support equipment and better methods of maintenance are discovered, your manual is periodically changed, revised, or supplemented. The following steps will help you keep your manual up-to-date:

A. CHANGES. Updating by adding to or partially replacing existing pages is defined as a change. Changes can be identified by the change notice on the new title page.



To collate a change, refer to the Filing Instructions sheet issued with the manual and proceed as follows:

1. Remove the pages listed in the "Remove" column of the Filing Instructions sheet from the manual and destroy them. Do not concern yourself with the data on the opposite side of the deleted page since, if this date is not deleted, it is replaced in the change package.
2. Insert all pages listed in the "Insert" column of the Filing Instructions sheet in sequence. Pages with a suffix letter are inserted in alphabetical order following the page with the same basic number; for example, pages 3-14A, 3-14B, etc, follow page 3-14.

GEN-NASA-1A

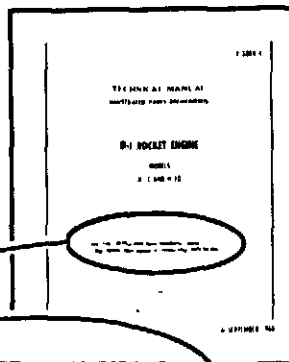
Figure 1-1. How to Maintain Your Manual (Sheet 1 of 2)

3. If you are unsure of the status of any page or pages, refer to the List of Effective Pages and make sure your manual contains pages (with the corresponding change dates) listed in the List of Effective Pages.
4. Remove manual supplements that have been incorporated.

NOTE

Incorporated supplements can be determined by reviewing the newly issued Manual Data Supplement Record.

B. REVISIONS. Updating by replacing all the existing pages of a manual is defined as a revision. Revisions can be identified by the replacement notice on the new title page.



THIS PUBLICATION REPLACES TECHNICAL
MANUAL R-XXXX-X DATED 1 APRIL 1969

To collate a revision, proceed as follows:

1. Remove and destroy all existing pages of your manual except Manual Data Supplements that have not been incorporated.

NOTE

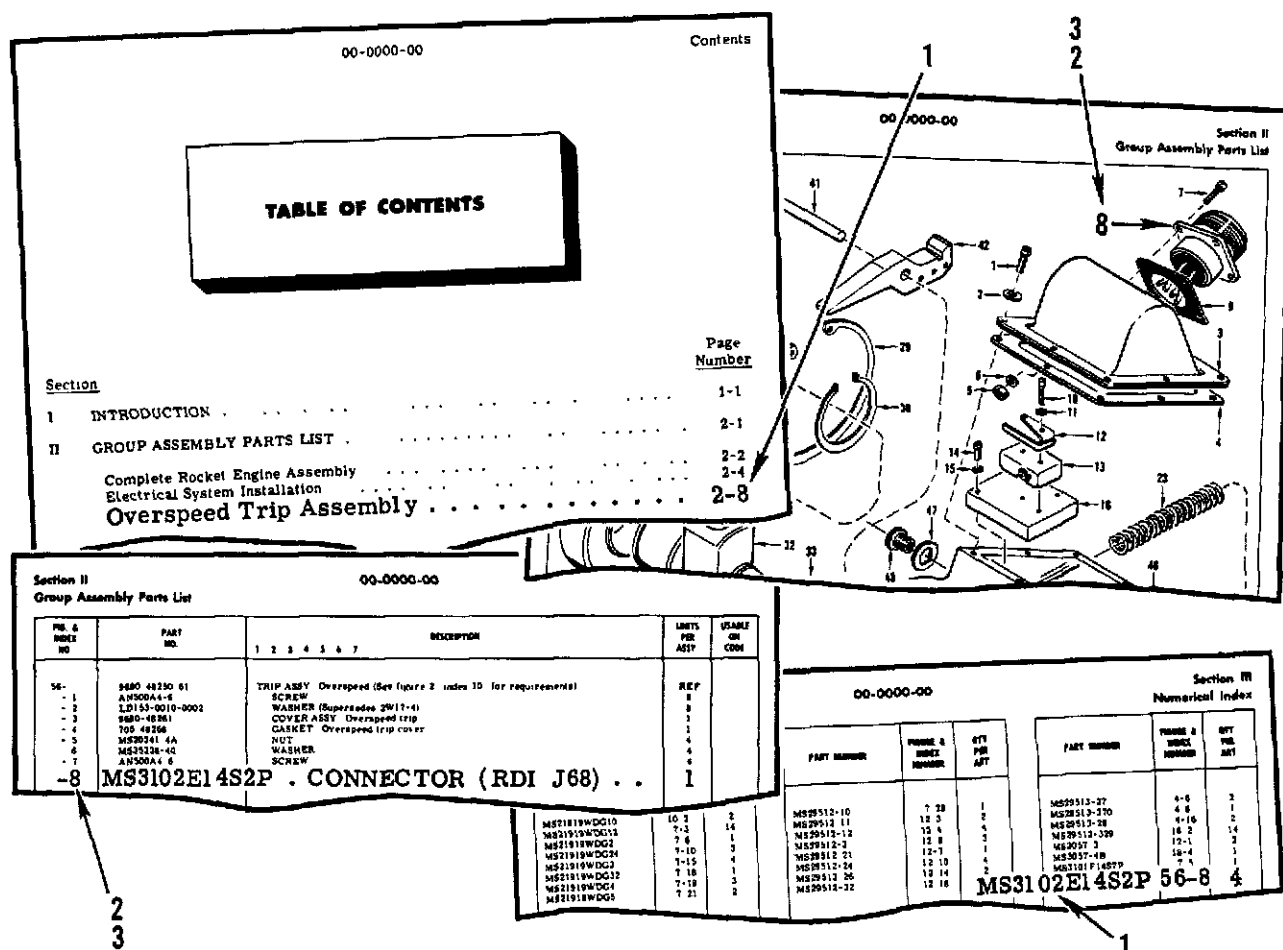
Unincorporated supplements can be identified by reviewing the Manual Data Supplement Record supplied in the revision.

2. Insert the new pages in your cover.

C. SUPPLEMENTS. Updating that authorizes the addition to, or alteration of, the existing data in your manual is defined as a Manual Data Supplement. Information on how to insert supplements is found in the supplements.

GEN-NASA-2

Figure 1-1. How to Maintain Your Manual (Sheet 2 of 2)



WHEN THE PART NUMBER IS NOT KNOWN

1. Determine the function and application of the part. Turn to the Table of Contents and select the most appropriate title. Note the page number of the title.
2. Turn to the page indicated and locate the desired part on the illustration.
3. From the illustration, obtain the index number assigned to the part. Find the index number in the figure and index number column of the accompanying description for specific information regarding the part.

WHEN THE PART NUMBER IS KNOWN

1. When the part number is known, refer to the Numerical Index. Locate the part number and note the figure and index number assigned to the part number.
2. Turn to the figure number indicated and locate the referenced index number in the figure and index number column of the description accompanying the illustration.
3. If a pictorial presentation of the part, or its location is desired, refer to the same index number of the accompanying illustration.

Figure 1-2. How to Locate a Part

Word	Abbreviation	Word	Abbreviation
Actuated	ACT	Modified Design	MD
Alternate	ALT	Manufactured	MFD
Attaching Parts	AP	Main Fuel Valve	MFV
As Required	AR	Main Oxidizer Valve	MOV
Assembly	ASSY	Next Higher Assembly	NHA
Augmented Spark Igniter	ASI	Not Applicable	N/A
Check Valve	CV	Number	NO.
Commercial	COML	Nonprocurable	NP
Corrosion-Resistant Steel	CRES	Outside Diameter	OD
Diameter	DIA	Oxidizer Turbine Bypass Valve	OTBV
Discharge	DISCH	Part Number	P/N
Drive	DR	Pneumatic	PNEU
Electrical Control Assembly	ECA	Pressure	PRESS. or PR
Engineering Change Proposal	ECP	Production	PROD.
Exchanger	EXCH	Propellant Utilization	PU
Gas Generator	GG	Pounds Per Square Inch	PSI
Gaseous Oxygen	GOX	Reference	REF
Head	HD	Regulator	REG
Helium	HEL	Requirements	REQMT
Hexagon	HEX	Sequence	SEQ
Ignition	IGN	Specification	SPEC
Inside Diameter	ID	Start Tank Discharge Valve	STDV
Inch	IN.	Subsequent	SUBS
Installation	INSTL	To Be Determined	TBD
Instrumentation	INSTR	Through	THRU
Interface	INTFC	Thrust Chamber	TC
Long	LG	Temperature	TEMP
Liquid Oxygen	LOX	Turbopump	T/P
Manifold	MANIF	Valve	V

Figure 1-3. Abbreviations

Code	Manufacturers Name and Address	Code	Manufacturers Name and Address
00334	Humidial Sales Co, 465 Mt. Vernon Ave, Colton, CA 92324	06725	Air Industries Corp, 12570 Knott St, Garden Grove, CA 92641
00624	Aeroquip Corp, Aerospace-Marman Division, Jackson Plant, 300 S East Ave, Jackson, MI 49203	07099	Moxness Products, Inc, 1914 Indiana St, Racine, WI 53405
02602	Rocketdyne Division, Rockwell International, 6633 Canoga Ave, Canoga Park, CA 91304	07107	Hydrodyne Division of FPI Inc, 7041 1/2 Vineland Ave, North Hollywood, CA 91605
03038	Longlok Corp, 4101 Redwood Ave, Los Angeles, CA 90066	07368	(See 03038)
04274	Rosemount, Inc, 12001 W 78th St, Eden Prairie, MN 55343	08199	Harrison Manufacturing Co, Division of Axial Corp, 3020 Empire Ave, Burbank, CA 91504
04319	Advanced Products Co, 33 Defco Park Rd, North Haven, CT 06473	08524	Deutsch Fastener Corp, P O Box 92925 7001 West Imperial Hwy, Los Angeles, CA 90045
04963	Minnesota Mining and Mfg Co, Adhesives, Coatings, and Sealers Division, 3M Center St. Paul, MN 55101	09127	Anaconda Metal Hose Division, Anaconda American Brass Co, Los Angeles Plant, 18518 Susana Rd, Compton, CA 90221
06071	DK Aerospace Co, Division of MSL Industries, Inc, 100 North Island Ave, Batavia, IL 60510	09268	Titeflex Division of Atlas Corp, Pacific Division, 2978 Nebraska Ave, Santa Monica, CA 90404
06144	Industrial Tectonics, Inc, Bearing Division, 18301 Santa Fe Ave, Compton, CA 90224	09384	Bell and Howell Co, Electronics and Instruments Group, Transducer Division, 360 Sierra Madre Villa, Pasadena, CA 91109
06238	Southwestern Industries, Inc, 5880 W Centinela, Los Angeles, CA 90045	10220	Macrodyne/Chatillon Corp, Precision Metal Products Division, 850 W Bradley Ave, El Cajon, CA 92021

Figure 1-4. Manufacturers Codes (Sheet 1 of 4)

Code	Manufacturers Name and Address	Code	Manufacturers Name and Address
10630	Anillo Industries, Inc, 2090 N Glassell, Orange, CA 92667	19696	Nova-Netics Corp, Division of ERA Mfg Corp, 1836 Floradale St, South El Monte, CA 91733
11825	Asco Machine Products, Inc, 567 E El Segundo, El Segundo, CA 90245	20767	Shurclose Seal Co, 17411 E Warren Ave, Detroit, MI 48224
12143	Bendix Corp, The, Electrical Components Division, Santa Ana Plant, 5230 N Clark Ave, Lakewood, CA 90712	21550	Wintec Division, Brunswick Corp, 5223 W Imperial Highway, Los Angeles, CA 90045
13466	(Business discontinued)	25205	Molded Devices, An Aydin Co, 2170 Colorado Ave, Santa Monica, CA 90401
13520	Western Filter Co, Inc, 8968 Fullbright Ave, Chatsworth, CA 91311	26344	Mite Corporation, 466 Blake St, New Haven, CT 06515
13946	(See 96682)	26831	Industrial Tube Corp, 22320 Avalon Blvd, P O Box 4607, Wilmington, CA 90744
14497	Miner and Associates, Inc, 2500 Compton Blvd, Redondo Beach, CA 90278	29372	Tridair Industries, Fastener Division, 3000 W Lomita Blvd, Torrance, CA 90505
14818	Aerospace Components Corp, 11650 Olympic Blvd, Los Angeles, CA 90064	43999	Rockwell International, Los Angeles Division, International Airport, Los Angeles, CA 90009
14834	Circle Seal Corp, Microporous Filter Division, P O Box 3666, Anaheim, CA 92803	53477	Scovill Mfg Co, Fluid Power Division, U S Route 1, Wake Forest, NC 27587
15635	Ecco Chemicals, Inc, 8708 Directors Row, Dallas, TX 75247	56878	Standard Pressed Steel Co, P O Box 796, Jenkintown, PA 19046
15653	Kaynar Mfg Co, Inc, Kaylock Division, P O Box 3001, 800 S State College, Fullerton, CA 92634		
15860	New Hampshire Ball Bearings, Inc, Astro Division, 155 Lexington Ave, Laconia, NH 03246		

Figure 1-4. Manufacturers Codes (Sheet 2 of 4)

Code	Manufacturers Name and Address	Code	Manufacturers Name and Address
57187	Statham Instruments, Inc. 2230 Statham Blvd, Statham Industrial Park, Oxnard, CA 93030	75165	Johns-Manville Corp, 22 E 40th St, New York, NY 10016
60380	Torrington Co, The, Subsidiary of Ingersoll-Rand Corp, 59 Field, Torrington, CT 06790	75237	Kaynar Mfg Co, Inc, A Microdot Co, P O Box 3001 800 S State College Blvd, Fullerton, CA 92634
65301	(See 97945)	76691	National Telephone Supply Co, Inc, 5100 Superior Ave, Cleveland, OH 44103
70040	AC Spark Plug Division of General Motors Corp, 1300 N Dort Hwy, Flint, MI 48556	77820	Bendix Corp, The, Electrical Components Division, Sherman Ave, Sidney, NY 13838
70128	(See 00624)	77842	Sealol, Inc, P O Box 2158, Providence, RI 02905
70308	Allied Chemical Corp, P O Box 4000R Morristown, NJ 07960	778118	Split Ball Bearing Division of MPB Corp, Highway 4, Lebanon, NH 03766
70628	Arrowhead Products, Division of Federal-Mogul Corp, 4411 Katella Ave, Los Alamitos, CA 90720	78570	Titeflex Division of Atlas Corp, 603 Hendee St, Springfield, MA 01109
71286	Rexnord, Inc, Specialty Fastener Division 22 Spring Valley Rd, Paramus, NJ 07652	79136	Waldes Kohinoor, Inc, 47-16 Austel Place, Long Island City, NY 11101
71643	Connecticut Hard Rubber Co, 407 East St, New Haven, CT 06509	79294	Weston Hydraulics Division, Borg-Warner Corp, P O Box 2185, 7500 Tyrone Ave, Van Nuys, CA 91405
71840	Gould, Inc, Clevite Engine Parts Division, 6161 Halle Dr, Cleveland, OH 44125	80201	Chicago Rawhide Mfg Co, 900 N State St, Elgin, IL 60120
72962	Elastic Stop Nut Division of Amerace Esna Corp, 2330 Vauxhall Rd, Union, NJ 07083		

Figure 1-4. Manufacturers Codes (Sheet 3 of 4)

Code	Manufacturers Name and Address	Code	Manufacturers Name and Address
80294	Bourns, Inc, Instrument Division, 6135 Magnolia Ave, Riverside, CA 92506	86928	Seastrom Mfg Co, Inc, 701 Sonora Ave, Glendale, CA 91201
80756	TRW Inc, Ramsey Corp, P O Box 513 St. Louis, MO 63166	91767	(See 26344)
80868	Photocon Research Products Co, 421 Altadena Dr, Pasadena, CA 91107	92555	Lee Co, The, 2 Pettipaug Rd, Westbrook, CT 06498
81248	Lennan Lights, Inc, 137 S Orange St, Glendale, CA 91204	93907	Camcar Screw and Mfg Co, 600 18th Ave, Rockford, IL 61101
81481	Avica-Flex Metal Bellows Corp, 20960 Knapp St, Chatsworth, CA 91311	96682	Genisco Technology Corp, Instruments Division, 18435 Susana Rd, Compton, CA 90221
81482	Cooperative Industries, Inc, 100 Oakdale Rd, Chester, NJ 07930	97613	Sargent Industries, Kahr Bearing Division, 3010 N San Fernando Blvd, Burbank, CA 91503
81629	Halfco Division of U S Bearing Corp, 9750 De Soto Ave, Chatsworth, CA 90053	97820	Shamban, W. S., and Co, 711 Mitchell Rd, Newbury Park, CA 91320
81896	Sargent Industries, Inc, Airite Division, 1700 E Grand Ave, El Segundo, CA 90245	97945	Pennwalt Corp, S. S. White Industrial Products Division, 151 Old New Brunswick Rd, Piscataway, NJ 08854
83311	General Laboratory Associates, Inc, Subsidiary of Simmonds Precision Products, P O Box 310, Norwich Rd, Norwich, NY 13815	99121	Precision Piston Rings, Inc of Indianapolis, 1419 Commerce St, Indianapolis, IN 46201
83324	Rosan, Inc, 2901 W Coast Highway, Newport Beach, CA 92663	99742	Johnson and Johnson, Inc, Permacel Division, U S Hwy 1, New Brunswick, NJ 08901

Figure 1-4. Manufacturers Codes (Sheet 4 of 4)

Code	MD No.	Engine Serial Number	Superseding MD No.	Code	MD No.	Engine Serial Number	Superseding MD No.
CF	3	J-2046	<u>136</u>	CRE	<u>88</u>	J-2039-1 THRU J-2062 .	<u>180</u>
JK	9	J-2046 THRU J-2082. . .	<u>211</u>	CRF	<u>88</u>	J-2039-1 THRU J-2062 .	<u>205</u>
JM	9	J-2046 THRU J-2103. . .	<u>233</u>	CRG	<u>88</u>	J-2039-1 THRU J-2056 .	<u>172</u>
JP	9	J-2046 THRU J-2130. . .	<u>239</u>	CRJ	<u>88</u>	J-2039-1 THRU J-2062 .	<u>192</u>
JR	9	J-2046 THRU J-2139. . .	<u>237</u>	CRL	<u>88</u>	J-2039-1 THRU J-2139 .	<u>237</u>
JS	9	J-2062 THRU J-2087. . .	<u>203</u>	CRM	<u>88</u>	J-2039-1 THRU J-2134 .	<u>344</u>
JT	9	J-2046 THRU J-2139. . .	<u>300</u>	CRN	<u>88</u>	J-2039-1 THRU J-2137 .	<u>315</u>
JU	9	J-2046	<u>214</u>	CRO	<u>88</u>	J-2039-1 THRU J-2046 .	<u>214</u>
LD	<u>11</u>	J-2046	<u>136</u>	DAC	<u>97</u>	J-2039-1 THRU J-2103 .	<u>234</u>
UK	<u>19</u>	J-2046 THRU J-2062. . .	<u>190</u>	DJB	<u>105</u>	J-2039-1 THRU J-2056 .	--
UL	<u>19</u>	J-2046 THRU J-2130. . .	<u>239</u>	ERA	<u>136</u>	J-2039-1, J-2056 THRU J-2152	--
UN	<u>19</u>	J-2062 THRU J-2130. . .	<u>239</u>	ERB	<u>136</u>	J-2056	--
UP	<u>19</u>	J-2062 THRU J-2103. . .	<u>234</u>	ESB	<u>137</u>	J-2039-1, J-2046	<u>136</u>
UR	<u>19</u>	J-2046	<u>214</u>	EUB	--	J-2062 THRU J-2139. . .	--
VL	<u>20</u>	J-2046 THRU J-2139. . .	<u>237</u>	EVB	<u>140</u>	J-2046	<u>214</u>
VM	<u>20</u>	J-2046 THRU J-2148. . .	<u>262</u>	EVC	<u>140</u>	J-2039-1 THRU J-2056 .	<u>172</u>
ABD	<u>26</u>	J-2039-1 THRU J-2130 .	<u>239, 385</u>	EWB	<u>141</u>	J-2039-1 THRU J-2062 .	<u>190</u>
ARC	<u>40</u>	J-2046	<u>136</u>	EZC	<u>148</u>	J-2039-1 THRU J-2094 .	<u>172, 232</u>
AUB	<u>43</u>	J-2046 THRU J-2139. . .	<u>237</u>	FDB	<u>148</u>	J-2039-1 THRU J-2056 .	<u>172</u>
BGC	<u>55</u>	J-2039-1 THRU J-2087 .	<u>212</u>	FFB	--	Engines not incorporat- ing MD <u>150</u> , MD <u>280</u> , or MD <u>281</u>	--
BGD	<u>55</u>	J-2039-1 THRU J-2130 .	<u>239</u>	FFC	--	Engines incorporating MD <u>150</u> , MD <u>280</u> , or MD <u>281</u>	--
BJB	<u>57</u>	J-2046 THRU J-2087. . .	<u>203</u>	FFD	<u>150</u> <u>280</u>	J-2039-1 THRU J-2139 .	--
BRB	<u>64</u>	Engines assigned to SII flight vehicles	<u>100</u>	FMB	<u>156</u>	SII center engines only .	--
BVC	<u>68</u>	J-2046	<u>166</u>				
BVE	<u>68</u>	J-2039-1 THRU J-2062 .	<u>190</u>				

Figure 1-5. Usable on Codes (Sheet 1 of 6)

Code	MD No.	Engine Serial Number	Superseding MD No.	Code	MD No.	Engine Serial Number	Superseding MD No.
FPB	--	J-2046 THRU J-2062...	--	GEC	<u>173</u>	J-2039-1, J-2046 THRU J-2144.....	--
FPC	--	J-2046, J-2056	--	GJA	<u>177</u>	Engines assigned to SII flight vehicles.....	--
FPD	--	J-2138 THRU J-2152...	--	GJB	<u>177</u>	Engines assigned to SII flight vehicles 501 through 509.....	<u>363, 373</u>
FRB	--	J-2056, J-2062	--	GMA	<u>180</u>	J-2039-1, J-2056, J-2075 THRU J-2152..	--
FRC	--	J-2104 THRU J-2152...	--	GSA	<u>185</u>	J-2075 THRU J-2152..	--
FSB	<u>161</u>	J-2039-1 THRU J-2079, J-2081 THRU J-2092...	<u>186</u>	GSB	<u>185</u>	J-2075 THRU J-2103..	<u>222, 223</u>
FUD	<u>163</u>	Engines assigned to SIVB restart missions..	--	GTB	<u>186</u>	J-2080, J-2093 THRU J-2103.....	<u>234</u>
FXA	<u>166</u>	J-2039-1, J-2056 THRU J-2152.....	--	GVB	<u>188</u>	J-2039-1, J-2062 THRU J-2130.....	<u>239</u>
FXB	<u>166</u>	J-2039-1, J-2046.....	<u>136</u>	GVC	<u>188</u>	J-2039-1, J-2062 THRU J-2082.....	<u>211</u>
FXC	<u>166</u>	J-2039-1, J-2056 THRU J-2137.....	<u>323</u>	GXA	<u>190</u>	J-2039-1, J-2075 THRU J-2152.....	--
FZB	--	J-2046.....	--	GXB	<u>190</u>	J-2039-1, J-2075 THRU J-2087.....	<u>240</u>
GDA	<u>172</u>	J-2039-1, J-2062 THRU J-2152.....	--	HBB	<u>194</u>	Engines assigned to SIVB flight vehicles ..	--
GDB	<u>172</u>	J-2039-1, J-2062.....	<u>201</u>	HCC	<u>195</u>	J-2039-1, J-2078 THRU J-2121.....	<u>243</u>
GDE	<u>172</u>	J-2039-1, J-2062 THRU J-2087.....	<u>203</u>	HDC	<u>196</u>	J-2039-1, J-2107 THRU J-2137.....	<u>315</u>
GDF	<u>172</u>	J-2039-1, J-2062 THRU J-2103.....	<u>236</u>	HDE	<u>196</u>	J-2039-1, J-2107 THRU J-2140.....	<u>340</u>
GDG	<u>172</u>	J-2039-1, J-2062 THRU J-2130.....	<u>239</u>	HJB	<u>201</u>	J-2039-1, J-2075 THRU J-2103.....	<u>236</u>
GDJ	<u>172</u>	J-2039-1, J-2062 THRU J-2139.....	<u>300</u>	HLA	<u>203</u>	J-2039-1, J-2088 THRU J-2152.....	--
GDL	<u>172</u>	J-2039-1, J-2062 THRU J-2106.....	<u>196</u>				
GDM	<u>172</u>	J-2039-1, J-2062 THRU J-2102.....	<u>206</u>				

Figure 1-5. Usable on Codes (Sheet 2 of 6)

Code	MD No.	Engine Serial Number	Superseding MD No.	Code	MD No.	Engine Serial Number	Superseding MD No.
HMB	<u>204</u>	J-2039-1, J-2075 THRU J-2077.	<u>195</u>	JVF	<u>236</u>	J-2075 THRU J-2152. . .	--
HNA	--	J-2083 THRU J-2152. . .	--	JWA	<u>237</u>	J-2140 THRU J-2152. . .	--
HNB	--	J-2046 THRU J-2082. . .	--	JWB	<u>237</u>	J-2140 THRU J-2148. . .	<u>262</u>
HPA	<u>206</u>	J-2103 THRU J-2152. . .	--	JWD	<u>237</u>	J-2140 THRU J-2146. . .	<u>360</u>
HTA	<u>210</u>	J-2039-1, J-2088 THRU J-2152.	--	JWE	<u>237</u>	J-2140 THRU J-2152. . .	<u>359,335</u>
HUA	<u>211</u>	J-2083 THRU J-2152. . .	--	JYA	<u>239</u>	J-2131 THRU J-2152. . .	--
HUC	<u>211</u>	J-2083 THRU J-2130. . .	<u>239</u>	JYB	<u>239</u>	J-2131 THRU J-2134. . .	<u>283</u>
HVA	<u>228</u>	J-2039-1, J-2075 THRU J-2077, J-2080, J-2081, J-2084 THRU J-2086. . .	--	JYC	<u>239</u>	J-2131 THRU J-2144. . .	<u>320</u>
	<u>212</u>	J-2039-1, J-2088 THRU J-2152.	--	JYE	<u>239</u>	J-2039-1, J-2131 THRU J-2139.	<u>324</u>
HXB	<u>214</u>	J-2056	--	JZA	<u>240</u>	J-2039-1, J-2075 THRU J-2152.	--
JCB	<u>219</u> <u>221</u>	J-2039-1 THRU J-2130 . J-2046, J-2056	<u>239</u> --	KCB	<u>243</u>	J-2122 THRU J-2130. . .	<u>239</u>
JGC	<u>223</u>	J-2113 THRU J-2121. . .	<u>271</u>	KDB	<u>244</u>	J-2110 THRU J-2141. . .	<u>340</u>
JRB	<u>232</u>	J-2039-1, J-2095 THRU J-2129.	<u>263,</u> <u>243,310</u>	KPB	<u>254</u>	Engines not assigned to SIVB restart missions. .	--
JRC	<u>232</u>	J-2039-1, J-2095 THRU J-2103.	<u>263</u>	KXA	<u>263</u>	J-2149 THRU J-2152. . .	--
JSA	<u>233</u>	J-2104 THRU J-2152. . .	--	KYE	--	J-2046 THRU J-2103. . .	--
JTA	<u>234</u>	J-2104 THRU J-2152. . .	--	LCA	<u>256</u> <u>267</u>	J-2056 J-2039-1, J-2046, J-2062, J-2075 THRU J-2152.	-- --
JTB	<u>234</u>	J-2104 THRU J-2130. . .	<u>239</u>		<u>278</u>	J-2056	--
JVA	<u>236</u>	J-2039-1, J-2046 THRU J-2152.	--	LHA	<u>272</u>	J-2039-1, J-2130 THRU J-2152.	--
JVB	<u>236</u>	J-2104 THRU J-2152. . .	--	LJA	--	J-2046	--
JVC	<u>236</u>	J-2046	<u>214</u>	LJB	--	J-2046, J-2056, J-2082, J-2075 THRU J-2103. . .	--
JVD	<u>236</u>	J-2062 THRU J-2152. . .	--				
JVE	<u>236</u>	J-2062	--				

Figure 1-5. Usable on Codes (Sheet 3 of 6)

Coed	MD No.	Engine Serial Number	Superseding MD No.	Code	MD No.	Engine Serial Number	Superseding MD No.
LKC	<u>274</u>	Engines J-2122 THRU J-2152 assigned to SIVB flight vehicles 508 THRU 515 and applicable engines assigned to SII flight vehicles	--	NCC	<u>315</u>	J-2138 THRU J-2142 . .	<u>311</u>
	<u>355</u>	Engines assigned to SII flight vehicles	--	NCD	<u>315</u>	J-2138 THRU J-2140 . .	<u>340</u>
LYA	<u>287</u>	J-2135 THRU J-2152. .	--	NHA	<u>320</u>	J-2145 THRU J-2152 . .	--
LZA	<u>288</u> <u>352</u>	J-2039-1, J-2045 J-2140 THRU J-2152. .	-- --	NHB	<u>320</u>	J-2039-1 THRU J-2121, J-2123 THRU J-2144 . .	--
LZD	--	J-2062, J-2075 THRU J-2139.	<u>352</u>	NLA	<u>323</u>	J-2138 THRU J-2152 . .	--
MFA	--	J-2039-1, J-2062 THRU J-2152.	--	NLB	<u>323</u>	J-2056 THRU J-2137 . .	--
MFB	--	J-2039-1, J-2060 THRU J-2129 Engines assigned to SIVB flight vehicles. .	--	NMC	<u>324</u>	J-2039-1, J-2140	<u>340</u>
MMA	<u>300</u>	J-2140 THRU J-2152. .	--	NRB	<u>328</u>	Applicable engines within J-2039-1 THRU J-2134	--
MMB	<u>300</u>	J-2140 THRU J-2144. .	<u>320</u>	NRC	<u>328</u>	J-2039-1 THRU J-2134 (Engines not incorporating MD150 or MD280). .	<u>150, 280</u>
MRB	<u>304</u>	Engines assigned to SIVB flight vehicles 205, 211, and 212.	--	NUB	<u>331</u>	Engines J-2039-1 THRU J-2134 assigned to SIVB restart missions	--
MXC	<u>310</u>	J-2130 THRU J-2139. .	<u>239, 283, 315, 359, 237</u>	NYA	<u>335</u>	Engines assigned to SII flight vehicles SII-4 THRU SII-15 AND SIVB flight vehicle 515	--
MYA	<u>311</u>	J-2143 THRU J-2152 .	--	NYB	<u>335</u>	Engines assigned to SII flight vehicles 504 through 509	<u>373, 374</u>
MYB	<u>311</u>	J-2143 only	<u>343</u>	PDB	<u>340</u>	J-2141 THRU J-2144 . .	<u>294</u>
NCA	<u>315</u>	J-2138 THRU J-2152. .	--	PDC	<u>340</u>	J-2141 THRU J-2142 . .	<u>311</u>
NCB	<u>315</u>	J-2046, J-2056, J-2062, J-2075 THRU J-2137. .	--	PGA	<u>343</u>	J-2144 THRU J-2152 . .	--
				PHA	<u>344</u>	J-2135 THRU J-2152 . .	--
				PHC	<u>344</u>	J-2135 THRU J-2139 . .	<u>237</u>
				PLB	<u>347</u>	Applicable to engines J-2135 THRU J-2152 assigned to nonrestart missions.	--
				PUA	<u>355</u>	J-2140 THRU J-2152 . .	--
				PZA	<u>360</u>	J-2147 THRU J-2152 . .	--

Figure 1-5. Usable on Codes (Sheet 4 of 6)

Code	MD No.	Engine Serial Number	Superseding MD No.	Code	MD No.	Engine Serial Number	Superseding MD No.
QCB	<u>363</u>	Engines assigned to SII flight vehicles 512 through 515	<u>375</u>	QQB	<u>375</u>	Engines assigned to SII flight vehicles 512 THRU 515	--
QDB	<u>364</u>	Engines assigned to SII flight vehicles 509 THRU 515 and 3 spare engines, serial numbers TBD . .	--	QRB	<u>376</u>	Engines assigned to SII flight vehicles 511 THRU 515, SIVB flight vehicles 511 THRU 514, and SIVB flight vehicles 206 THRU 211	--
QEB	<u>371</u>	Engines assigned to SII flight vehicles 509 THRU 515 and SIVB flight vehicles 206 THRU 211 plus 4 spare engines . .	--	QSB	<u>377</u>	J-2046, J-2062 J-2083, and J-2087 . . .	--
QEC	<u>366</u>	Engines assigned to SIVB flight vehicles 509 THRU 514 plus 2 spare engines	--	QTB	<u>378</u>	J-2056	--
QED	<u>366</u> , <u>371</u>	Engines assigned to SII and SIVB flight vehicles, as applicable	--	QUB	<u>379</u>	J-2039-1, J-2103, J-2107, J-2111, J-2133, J-2146, J-2148, engines assigned to SII flight vehicles 511 THRU 515, SIVB flight vehicle 211, and SIVB flight vehicles 511 THRU 514	--
QFB	<u>370</u>	Engines assigned to SII flight vehicles 509 THRU 515 and SIVB flight vehicles 206 THRU 211, plus 7 spare engines . .	--	QVB	<u>380</u>	Engines assigned to SII flight vehicle 512, SIVB flight vehicle 512, and engine J-2138 assigned to SII flight vehicle 513 .	--
QFC	<u>370</u>	Engines assigned to SII flight vehicles 509 THRU 515 and SIVB flight vehicles 509 THRU 515 and 206 THRU 211, plus 7 spare engines	--	QWB	<u>381</u>	Engines assigned to SII flight vehicles 513 (four engines), 514, 515, SIVB flight vehicles 513, 202 THRU 211 and engines J-2107, J-2111, J-2133, and J-2146.	--
QMB	<u>372</u>	Engines assigned to SIVB flight vehicles 510 through 514, and 206 THRU 211	--	QYB	<u>383</u>	Engines assigned to SII flight vehicles 512 THRU 515, SIVB flight vehicles 512 THRU 514, and SIVB flight vehicles 207 THRU 211	--
QNB	<u>373</u>	Engines assigned to SII flight vehicles 510 and 511 plus 4 spare engines	--	QZB	<u>384</u>	Engine J-2046 assigned to SIVB flight vehicle 206	--
QPB	<u>374</u>	Engines assigned to SII flight vehicles 512 through 515	<u>375</u>	RAB	<u>385</u>	J-2111 and J-2133	--

Figure 1-5. Usable on Codes (Sheet 5 of 6)

Code	MD No.	Engine Serial Number	Superseding MD No.	Code	MD No.	Engine Serial Number	Superseding MD No.
VAR	--	J-2046, J-2056, J-2062, J-2075 THRU J-2103 ..	<u>233</u>				
VBH	--	J-2062, J-2075 THRU J-2103	--				
VBJ	--	J-2031 THRU J-2071 ..	--				
VBK	--	J-2072 THRU J-2137 ..	--				
VBL	--	J-2138 THRU J-2152 ..	--				
VBM	--	J-2039-1 THRU J-2139 .	--				
VBN	--	J-2039-1 THRU J-2121 .	--				
VBP	--	J-2039-1 THRU J-2130 .	--				
VBQ	--	J-2039-1 THRU J-2062 .	--				
VBR	--	J-2075 THRU J-2152 ..	--				
VBS	--	J-2039-1 THRU J-2062 (Engines not incorpora- ting <u>MD328</u> , <u>MD150</u> , or <u>MD280</u>)	--				
VBT	--	J-2075 THRU J-2152 (Engines not incorpora- ting <u>MD328</u> , <u>MD150</u> , or <u>MD280</u>)	--				

Figure 1-5. Usable on Codes (Sheet 6 of 6)

Parts Coded	Removal and Replacement Action	Parts Coded	Removal and Replacement Action
A	Assembled from component parts.	X	Will not be procured.
D	Removed and replaced at depot level (Rocketdyne).	*	Removed and reinstalled at all locations.
F	Removed and replaced at field level (using sites).	1	Field level (using sites).
M	May be manufactured at level designated by accompanying digit.	2	Depot (Rocketdyne).
U	Information only, such as installation drawings, etc.	3	Nonrepairable.

Figure 1-6. Repair Codes

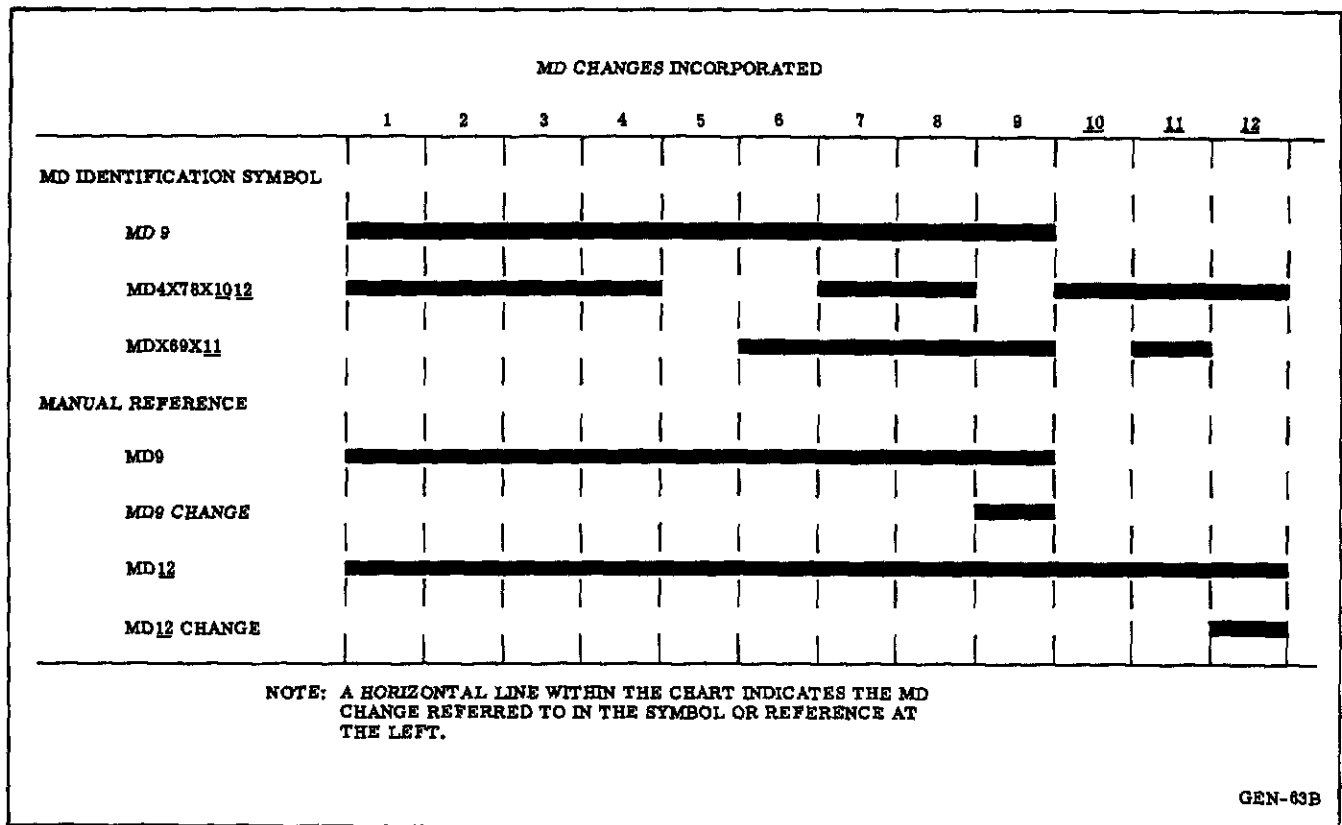


Figure 1-7. MD System

Approved ECP No.	MD No.	Incorporated in Manual Dated	Approved ECP No.	MD No.	Incorporated in Manual Dated
J2-12	1	25 October 1963	J2-95	20	29 April 1964
J2-13	1	25 October 1963	J2-96	72	27 February 1964
J2-14	3	25 October 1963	J2-97	25	27 February 1964
J2-15	1	25 October 1963	J2-99	14	29 April 1964
J2-17	5	25 October 1963	J2-100	10	29 April 1964
J2-18	6	25 October 1963	J2-101	27	23 December 1964
J2-19	5	25 October 1963	J2-102	38	26 June 1964
J2-20	64	23 June 1965	J2-103	8	27 February 1964
J2-20R1	--	N/A	J2-105	26	29 April 1964
J2-24	8	25 October 1963	J2-106	9	25 September 1964
J2-26	9	25 September 1964	J2-107	42	25 September 1964
J2-31	9	26 June 1964	J2-108	37	27 February 1964
J2-33	77	25 September 1964	J2-109	3	27 February 1964
J2-36	1	25 October 1963	J2-110	36	27 February 1964
J2-39	8	25 October 1963	J2-112	13	29 April 1964
J2-41	2	25 October 1963	J2-113	34	27 February 1964
J2-44	61	23 June 1965	J2-115	32	26 June 1964
J2-44R1	--	N/A	J2-117	9	25 September 1964
J2-45	3	23 December 1964	J2-121	9	25 September 1964
J2-46	5	25 October 1963	J2-122	8	29 April 1964
J2-47	10	27 February 1964	J2-123	43	25 September 1964
J2-48	28	27 February 1964	J2-124	60	23 December 1964
J2-51	16	27 February 1964	J2-125	56	23 March 1965
J2-52	1	25 October 1963	J2-126	3	29 April 1964
J2-55	7	23 March 1965	J2-127	26	29 April 1964
J2-57	11	27 February 1964	J2-128	53	25 September 1964
J2-62	9	23 December 1964	J2-129	40	26 June 1964
J2-63	77	27 February 1964	J2-130	3	29 April 1964
J2-64	9	25 September 1964	J2-139	23	29 April 1964
J2-66	26	27 February 1964	J2-140	41	25 September 1964
J2-67	14	27 February 1964	J2-141	9	23 December 1964
J2-69	77	29 April 1964	J2-146	9	25 September 1964
J2-74	70	23 December 1964	J2-147	9	25 September 1964
J2-75	18	27 February 1964	J2-151	11	25 September 1964
J2-76	56	25 September 1964	J2-152	79	23 December 1964
J2-77	17	27 February 1964	J2-154	23	29 April 1964
J2-78	20	27 February 1964	J2-157	44	23 June 1964
J2-79	55	25 September 1964	J2-158	51	25 September 1964
J2-80	11	25 September 1964	J2-159	23	29 April 1964
J2-81	9	27 February 1964	J2-160	47	25 September 1964
J2-82	70	23 December 1964	J2-161	68	23 June 1965
J2-84	48	23 December 1964	J2-161R1	--	N/A
J2-85	8	27 February 1964	J2-161R2	--	N/A
J2-86	26	27 February 1964	J2-163	54	25 September 1964
J2-87	23	27 February 1964	J2-164	37	23 December 1964
J2-88	8	27 February 1964	J2-166	45	29 April 1964
J2-90	8	27 February 1964	J2-167	46	25 September 1964
J2-91	49	26 June 1964	J2-172	59	25 September 1964
J2-92	8	27 February 1964	J2-173	3	29 April 1964
J2-94	77	29 April 1964	J2-174	57	25 September 1964

Figure 1-8. Configuration Changes--Manual Effectivity (Sheet 1 of 6)

Approved ECP No.	MD No.	Incorporated in Manual Dated	Approved ECP No.	MD No.	Incorporated in Manual Dated
J2-181	9	25 September 1964	J2-271	186	22 December 1965
J2-185	80	25 September 1964	J2-271R1	--	N/A
J2-186	<u>69</u>	25 September 1964	J2-271R2	--	N/A
J2-188	<u>3</u>	29 April 1964	J2-271R3	--	N/A
J2-191	<u>64</u>	23 June 1965	J2-280	<u>56</u>	23 December 1964
J2-191R1	--	N/A	J2-281	<u>9</u>	25 September 1964
J2-195	<u>88, 111</u>	23 June 1965	J2-284	<u>101</u>	25 September 1964
J2-195R1	--	N/A	J2-285	<u>58</u>	23 December 1964
J2-195R2	--	N/A	J2-286	<u>3</u>	29 April 1964
J2-195R3	--	N/A	J2-287	9	23 December 1964
J2-195R4	--	N/A	J2-288	3	23 December 1964
J2-196	9	23 December 1964	J2-289	9	25 September 1964
J2-198	3	23 December 1964	J2-290	9	23 December 1964
J2-199	97	23 June 1965	J2-293	105	23 December 1964
J2-200	<u>23</u>	23 June 1965	J2-293	<u>105</u>	27 November 1968
J2-202	<u>37</u>	23 December 1964	J2-296	<u>35</u>	23 June 1965
J2-204	<u>56</u>	23 December 1964	J2-296R1	--	N/A
J2-207	--	N/A	J2-298	<u>50</u>	23 June 1965
J2-218	<u>56</u>	23 December 1964	J2-298R1	--	N/A
J2-226	<u>3</u>	N/A	J2-300	107	23 December 1964
J2-227	99	23 December 1964	J2-303	<u>56</u>	23 June 1965
J2-229	<u>108</u>	23 June 1965	J2-306	<u>9</u>	23 March 1965
J2-229R1	--	N/A	J2-307	9	23 December 1964
J2-232	9	23 December 1964	J2-308	56	23 June 1965
J2-235	58	25 September 1964	J2-310	<u>137</u>	23 June 1965
J2-236	<u>72</u>	23 June 1964	J2-310R1	--	N/A
J2-240	<u>3</u>	25 September 1964	J2-310R2	--	N/A
J2-241	86	25 September 1964	J2-312	9	23 December 1964
J2-243	<u>19</u>	23 December 1964	J2-313	119	N/A
J2-246	<u>3</u>	23 December 1964	J2-315	<u>70</u>	23 March 1965
J2-247	76	23 June 1965	J2-316	<u>19</u>	23 December 1964
J2-248	<u>106</u>	25 September 1964	J2-317	<u>9</u>	23 December 1964
J2-249	<u>84</u>	23 December 1964	J2-318	153	N/A
J2-250	<u>87</u>	23 December 1964	J2-318R1	--	N/A
J2-251	<u>78</u>	23 December 1964	J2-319	123	23 June 1965
J2-252	<u>56</u>	23 December 1964	J2-319R1	--	N/A
J2-254	<u>88, 91</u>	23 June 1965	J2-319R2	--	N/A
J2-254R1	--	N/A	J2-320	100	19 September 1966
J2-254R2	--	N/A	J2-320R1	--	N/A
J2-254R3	--	N/A	J2-321	118	23 June 1965
J2-254R4	--	N/A	J2-322	<u>116</u>	23 March 1965
J2-255	<u>88, 187</u>	23 December 1964	J2-329	<u>133</u>	23 June 1965
J2-255ER1	--	N/A	J2-329R1	--	N/A
J2-255ER2	--	N/A	J2-329R2	<u>133, 338</u>	23 August 1968
J2-255ER3	--	N/A	J2-330	88	23 June 1965
J2-255ER4	--	N/A	J2-331	<u>117</u>	23 June 1965
J2-255ER5	--	N/A	J2-331R1	--	N/A
J2-257	9	23 December 1964	J2-332	9	23 June 1965
J2-259	64	23 December 1964	J2-333	141	23 June 1965
J2-260	<u>38, 82</u>	25 September 1964	J2-333R1	--	N/A
J2-268	<u>9</u>	25 September 1964	J2-338	<u>136</u>	23 June 1965

Figure 1-8. Configuration Changes--Manual Effectivity (Sheet 2 of 6)

Approved ECP No.	MD No.	Incorporated in Manual Dated	Approved ECP No.	MD No.	Incorporated in Manual Dated
J2-340	9	23 June 1965	J2-389R2	--	N/A
J2-341	120	22 December 1965	J2-390	143	23 September 1965
J2-345	56	23 June 1965	J2-390R1	--	N/A
J2-345R1	--	N/A	J2-391	88	23 September 1965
J2-347	121	23 June 1965	J2-391R1	--	N/A
J2-348	122	23 June 1965	J2-394	148	23 September 1965
J2-350	15	23 June 1965	J2-394R1	--	N/A
J2-350R1	--	N/A	J2-395	146	23 September 1965
J2-351	124	23 June 1965	J2-395R1	--	N/A
J2-351R1	--	N/A	J2-397	156	N/A
J2-352	56	23 June 1965	J2-398	182	N/A
J2-358	64	23 June 1965	J2-398R1	--	N/A
J2-359	140	23 June 1965	J2-399	163, 202	21 June 1966
J2-359R1	--	N/A	J2-399R1	--	N/A
J2-360	139	23 June 1965	J2-399R2	--	N/A
J2-360R1	--	N/A	J2-399R3	--	N/A
J2-360R2	--	N/A	J2-399R4	--	N/A
J2-361	30, 127	23 June 1965	J2-401	152	23 September 1965
J2-362	131	23 June 1965	J2-403	157	N/A
J2-363	138	23 June 1965	J2-403R1	--	N/A
J2-363R1	--	N/A	J2-403R2	--	N/A
J2-364	132	23 June 1965	J2-404	88	23 September 1965
J2-365	142	23 June 1965	J2-405	237	19 December 1966
J2-366	128	23 June 1965	J2-405R1	--	N/A
J2-367	70	23 June 1965	J2-405R2	--	N/A
J2-368	130	23 June 1965	J2-407	88	23 September 1965
J2-368R1	--	N/A	J2-408	155, 227	21 June 1966
J2-369	151	23 September 1965	J2-408R1	--	N/A
J2-369R1	--	N/A	J2-409	166	23 September 1965
J2-369R2	--	N/A	J2-409R1	--	N/A
J2-369R3	--	N/A	J2-409R2	--	N/A
J2-369R4	--	N/A	J2-410	160	23 June 1965
J2-370	150	21 June 1966	J2-410R1	--	N/A
J2-370R1	--	N/A	J2-412	159	N/A
J2-370R2	150, 280, 281	10 July 1967	J2-413	161	22 December 1965
J2-371	70	23 June 1965	J2-413R1	--	N/A
J2-372	134	23 June 1965	J2-414	174	N/A
J2-376	135	23 June 1965	J2-414R1	--	N/A
J2-380	136	23 September 1965	J2-414R2	--	N/A
J2-382	136	23 September 1965	J2-415	170, 200	N/A
J2-383	158	22 December 1965	J2-415R1	--	N/A
J2-383R1	--	N/A	J2-415R2	--	N/A
J2-387	149, 154	23 September 1965	J2-415R3	200, 339	23 August 1968
J2-387R1	--	N/A	J2-416	165	22 December 1965
J2-387R2	--	N/A	J2-416R1	--	N/A
J2-387R3	--	N/A	J2-417	173	23 September 1965
J2-387R4	--	N/A	J2-419	168	19 September 1966
J2-388	166	23 September 1965	J2-421	172	23 September 1965
J2-389	144	23 June 1965	J2-421R1	--	N/A
J2-389R1	--	N/A	J2-422	171	23 September 1965

Figure 1-8. Configuration Changes--Manual Effectivity (Sheet 3 of 6)

Approved ECP No.	MD No.	Incorporated in Manual Dated	Approved ECP No.	MD No.	Incorporated in Manual Dated
J2-423	--	N/A	J2-471	<u>212, 228</u>	21 June 1966
J2-426	<u>185</u>	10 July 1967	J2-471R1	--	N/A
J2-428	<u>194</u>	27 November 1968	J2-471R2	--	N/A
J2-429	<u>185</u>	23 March 1966	J2-472	<u>193</u>	19 September 1966
J2-430	<u>172</u>	22 December 1965	J2-474	<u>215, 231, 245</u>	N/A
J2-430R1	--	N/A	J2-474R1	--	N/A
J2-430R2	--	N/A	J2-474R2	--	N/A
J2-430R3	--	N/A	J2-474R3	--	N/A
J2-431	<u>177</u>	22 December 1965	J2-474R4	--	N/A
J2-431R1	--	N/A	J2-474R5	--	15 March 1967
J2-431R2	--	N/A	J2-475	--	N/A
J2-432	<u>176</u>	22 December 1965	J2-475R1	--	N/A
J2-433	<u>178</u>	22 December 1965	J2-475R2	--	N/A
J2-434	<u>180, 181</u>	22 December 1965	J2-476	<u>198</u>	19 September 1966
J2-435	<u>179</u>	22 December 1965	J2-476R1	--	N/A
J2-435R1	--	N/A	J2-476R2	--	N/A
J2-437	<u>192, 246</u>	23 March 1966	J2-476R3	--	17 March 1967
J2-437R1	--	19 December 1966	J2-477	<u>239, 310</u>	19 December 1966
J2-437R2	--	19 December 1966	J2-477R1	--	N/A
J2-438	<u>185</u>	21 June 1966	J2-477R2	--	14 February 1968
J2-440	<u>201</u>	23 March 1966	J2-479	<u>206, 232</u>	19 September 1966
J2-440R1	<u>201</u>	3 May 1972	J2-479R1	--	N/A
J2-445	<u>172</u>	22 December 1965	J2-479R2	--	N/A
J2-449	<u>183</u>	22 December 1965	J2-479R3	--	N/A
J2-449R1	--	N/A	J2-481	<u>217</u>	19 September 1966
J2-451	<u>172, 206</u>	22 December 1965	J2-482	<u>222</u>	21 June 1966
J2-452	<u>184</u>	22 December 1965	J2-482R1	--	N/A
J2-455	<u>188, 198</u>	23 March 1966	J2-483	<u>224, 225, 292</u>	N/A
J2-455R1	--	N/A	J2-483R1	--	17 March 1967
J2-455R2	--	N/A	J2-483R2	--	17 March 1967
J2-455R3	--	N/A	J2-483R3	--	20 October 1967
J2-458	<u>191</u>	23 March 1966	J2-483R4	--	N/A
J2-458R1	--	N/A	J2-485	--	N/A
J2-459	<u>205</u>	23 March 1966	J2-488	<u>208</u>	19 September 1966
J2-459R1	--	N/A	J2-488R1	--	N/A
J2-459R2	--	N/A	J2-489	<u>185</u>	19 September 1966
J2-461	<u>204</u>	23 March 1966	J2-489R1	--	N/A
J2-461R1	--	N/A	J2-489R2	--	23 August 1968
J2-461R2	--	20 October 1967	J2-492	<u>223</u>	21 June 1966
J2-463	<u>189</u>	22 December 1965	J2-492R1	--	N/A
J2-465	<u>190</u>	23 March 1966	J2-492R2	--	N/A
J2-465R1	<u>190, 334</u>	23 August 1968	J2-492R3	--	N/A
J2-466	<u>239, 310</u>	19 December 1966	J2-493	<u>185</u>	21 June 1966
J2-466R1	--	N/A	J2-494	<u>210</u>	19 September 1966
J2-466R2	--	14 February 1968	J2-495	<u>207</u>	N/A
J2-467	<u>212</u>	21 June 1966	J2-496	<u>203</u>	21 June 1966
J2-468	<u>172</u>	23 March 1966	J2-497	<u>213</u>	21 June 1966
J2-468R1	--	N/A	J2-497R1	--	N/A
J2-469	<u>195</u>	23 March 1966	J2-499	--	N/A
J2-469R1	--	N/A	J2-499R2	--	N/A
J2-470	<u>211, 319</u>	21 June 1966	J2-500	<u>209</u>	N/A
J2-470R1	--	14 February 1968			

Figure 1-8. Configuration Changes--Manual Effectivity (Sheet 4 of 6)

Approved ECP No.	MD No.	Incorporated in Manual Dated	Approved ECP No.	MD No.	Incorporated in Manual Dated
J2-501	--	N/A	J2-556R1	--	N/A
J2-501R1	--	N/A	J2-557	294	17 March 1967
J2-501R2	--	N/A	J2-558	<u>258</u> , <u>261</u> , <u>321</u>	17 March 1967
J2-505	<u>214</u>	19 September 1966	J2-558R1	--	N/A
J2-505R1	<u>214</u>	12 January 1973	J2-559	--	17 March 1967
J2-507	<u>226</u>	21 June 1966	J2-560	--	N/A
J2-507R1	--	N/A	J2-561	273	10 July 1967
J2-510	218	21 June 1966	J2-564	<u>253</u>	N/A
J2-511	<u>219</u>	21 June 1966	J2-566	<u>243</u>	17 March 1967
J2-511R1	--	N/A	J2-566R1	--	N/A
J2-513	<u>221</u>	21 June 1966	J2-567	<u>275</u>	10 July 1967
J2-513R1	--	N/A	J2-567R1	--	20 October 1967
J2-514	--	N/A	J2-568	271	10 July 1967
J2-522	--	N/A	J2-570	<u>294</u>	N/A
J2-523	233	19 September 1966	J2-571	<u>239</u>	17 March 1967
J2-524	<u>229</u>	N/A	J2-571R1	--	N/A
J2-525	<u>234</u>	19 September 1966	J2-575	<u>256</u>	17 March 1967
J2-525R1	--	N/A	J2-575R1	--	N/A
J2-527	<u>238</u> , <u>248</u> , <u>250</u> , <u>290</u>	N/A	J2-575R3	<u>256</u> , <u>267</u> , <u>278</u>	10 July 1967
J2-527R1	--	N/A	J2-575R4	--	N/A
J2-527R2	--	N/A	J2-575R5	--	20 October 1967
J2-527R3	<u>238</u> , <u>248</u> , <u>250</u> , <u>290</u> , <u>341</u>	23 August 1968	J2-577	--	N/A
J2-528	--	N/A	J2-577R1	--	N/A
J2-529	230	19 September 1966	J2-577R3	--	N/A
J2-531	<u>243</u>	19 December 1966	J2-580	--	N/A
J2-532	<u>270</u>	10 July 1967	J2-581	<u>257</u> , <u>318</u>	17 March 1967
J2-532R1	--	N/A	J2-581R2	--	N/A
J2-538	<u>244</u>	19 December 1966	J2-581R3	--	23 August 1968
J2-538R1	--	17 March 1967	J2-582	259	17 March 1967
J2-540	<u>240</u>	19 December 1966	J2-587	<u>291</u>	26 April 1968
J2-541	--	N/A	J2-588	<u>263</u> , <u>274</u>	N/A
J2-542	242	19 December 1966	J2-588R1	--	20 October 1967
J2-544	<u>236</u>	19 December 1966	J2-588R2	--	N/A
J2-544R1	<u>236</u>	27 April 1972	J2-588R3	--	27 November 1968
J2-545	235	N/A	J2-588R3	<u>263</u> , <u>274</u> , <u>355</u>	14 February 1969
J2-546	<u>243</u>	17 March 1967	J2-589	--	N/A
J2-546R1	--	N/A	J2-590	<u>260</u>	N/A
J2-547	<u>241</u>	N/A	J2-590R3	--	N/A
J2-547R1	--	N/A	J2-590R4	<u>260</u>	23 August 1968
J2-547R2	--	N/A	J2-592	<u>272</u>	10 July 1967
J2-548	237	N/A	J2-594	<u>268</u> , <u>269</u> , <u>279</u> , <u>282</u> , <u>296</u> , <u>313</u> , <u>314</u> , <u>315</u>	26 April 1968
J2-549	<u>247</u>	19 December 1966	J2-598	266	26 April 1968
J2-550	<u>262</u>	17 March 1967	J2-599	<u>265</u>	N/A
J2-551	<u>276</u> , <u>277</u>	N/A	J2-599R1	--	N/A
J2-551R1	--	N/A	J2-599R2	--	23 August 1968
J2-552	<u>251</u> , <u>252</u>	17 March 1967	J2-600	<u>239</u>	20 October 1967
J2-552R1	--	N/A	J2-601	<u>283</u>	20 October 1967
J2-553	254	23 August 1968	J2-601R1	--	20 October 1967
J2-553R1	<u>254</u> , <u>347</u>	27 November 1968	J2-602	<u>284</u> , <u>285</u>	20 October 1967
J2-556	--	N/A	J2-602R1	--	20 October 1967

Figure 1-8. Configuration Changes--Manual Effectivity (Sheet 5 of 6)

Approved ECP No.	MD No.	Incorporated in Manual Dated	Approved ECP No.	MD No.	Incorporated in Manual Dated
J2-603	<u>286</u>	20 October 1967	J2-647	<u>343</u>	27 November 1968
J2-603ER2	--	20 October 1967	J2-647R1	<u>343</u>	14 February 1969
J2-604	--	N/A	J2-649	--	N/A
J2-605	<u>287</u>	20 October 1967	J2-650	--	N/A
J2-606	<u>324</u>	26 April 1968	J2-652	--	N/A
J2-606R1	--	27 November 1968	J2-654	<u>346</u>	27 November 1968
J2-607	<u>288, 289, 290,</u> <u>297, 298, 299</u>	20 October 1967	J2-655	--	N/A
J2-607R1	--	N/A	J2-656	<u>354</u>	14 February 1969
J2-607R2	<u>288, 289, 297,</u> <u>298, 299, 305,</u> <u>306, 307, 308,</u> <u>309</u>	14 February 1968	J2-657R1	<u>353</u>	14 February 1969
J2-608	<u>300</u>	27 November 1968	J2-657R2	<u>353</u>	18 July 1969
J2-612	<u>293</u>	20 October 1967	J2-659	<u>358</u>	14 February 1969
J2-613	--	N/A	J2-662	<u>360</u>	14 February 1969
J2-616	<u>303, 304</u>	N/A	J2-666R1	<u>359</u>	18 July 1969
J2-618	<u>270</u>	20 October 1967	J2-666R2	<u>370</u>	N/A
J2-620R1	<u>295, 301, 302,</u> <u>322, 323</u>	14 February 1968	J2-666R3	<u>370</u>	N/A
J2-620R2	--	27 November 1968	J2-668	<u>361</u>	18 July 1969
J2-620R3	--	27 November 1968	J2-670R1	<u>385</u>	8 October 1973
J2-621	<u>311, 312</u>	14 February 1968	J2-670R2	<u>385</u>	13 November 1973
J2-624	<u>316, 317, 320</u>	14 February 1968	J2-672	--	N/A
J2-624R1	<u>316, 317,</u> <u>320, 342</u>	23 August 1968	J2-675	<u>362</u>	23 February 1970
J2-624R1	<u>316, 317, 320,</u> <u>342, 351</u>	18 July 1969	J2-675R1	<u>362</u>	12 January 1973
J2-631	<u>325</u>	26 April 1968	J2-688	--	N/A
J2-632	--	N/A	J2-689R3	<u>366, 371</u>	14 May 1971
J2-633	<u>340, 349, 350</u>	27 November 1968	J2-694R2	<u>363, 373, 374</u>	14 May 1971
J2-634	--	18 July 1969	J2-694R3	<u>375</u>	4 February 1972
J2-636R1	<u>333</u>	27 November 1968	J2-695	<u>364</u>	18 September 1970
J2-637	<u>335</u>	23 August 1968	J2-697	<u>367, 368, 369</u>	N/A
J2-637R1	--	27 November 1968	J2-700	<u>370</u>	18 September 1970
J2-640R1	<u>336</u>	27 November 1968	J2-704	<u>372</u>	14 May 1971
J2-641R1	<u>348</u>	27 November 1968	J2-704R1	<u>372</u>	12 January 1973
J2-642	--	N/A	J2-708R2	<u>380, 381</u>	12 January 1973
J2-643	<u>327, 328, 329,</u> <u>330, 331, 332,</u> <u>334</u>	23 August 1968	J2-708R3	<u>380, 381</u>	26 November 1973
J2-643R1	<u>328, 329, 330,</u> <u>331, 332, 344,</u> <u>345</u>	27 November 1968	J2-710R2	<u>382</u>	12 January 1973
J2-643R2	<u>328, 329, 330,</u> <u>331, 332, 344,</u> <u>345</u>	14 February 1969	J2-711	<u>376</u>	4 February 1972
J2-645	--	N/A	J2-714	<u>377, 378, 379</u>	4 February 1972
J2-646	<u>337</u>	27 November 1968	J2-717	<u>383, 384</u>	12 January 1973

Figure 1-8. Configuration Changes--Manual Effectivity (Sheet 6 of 6)

SECTION II
GROUP ASSEMBLY PARTS LIST

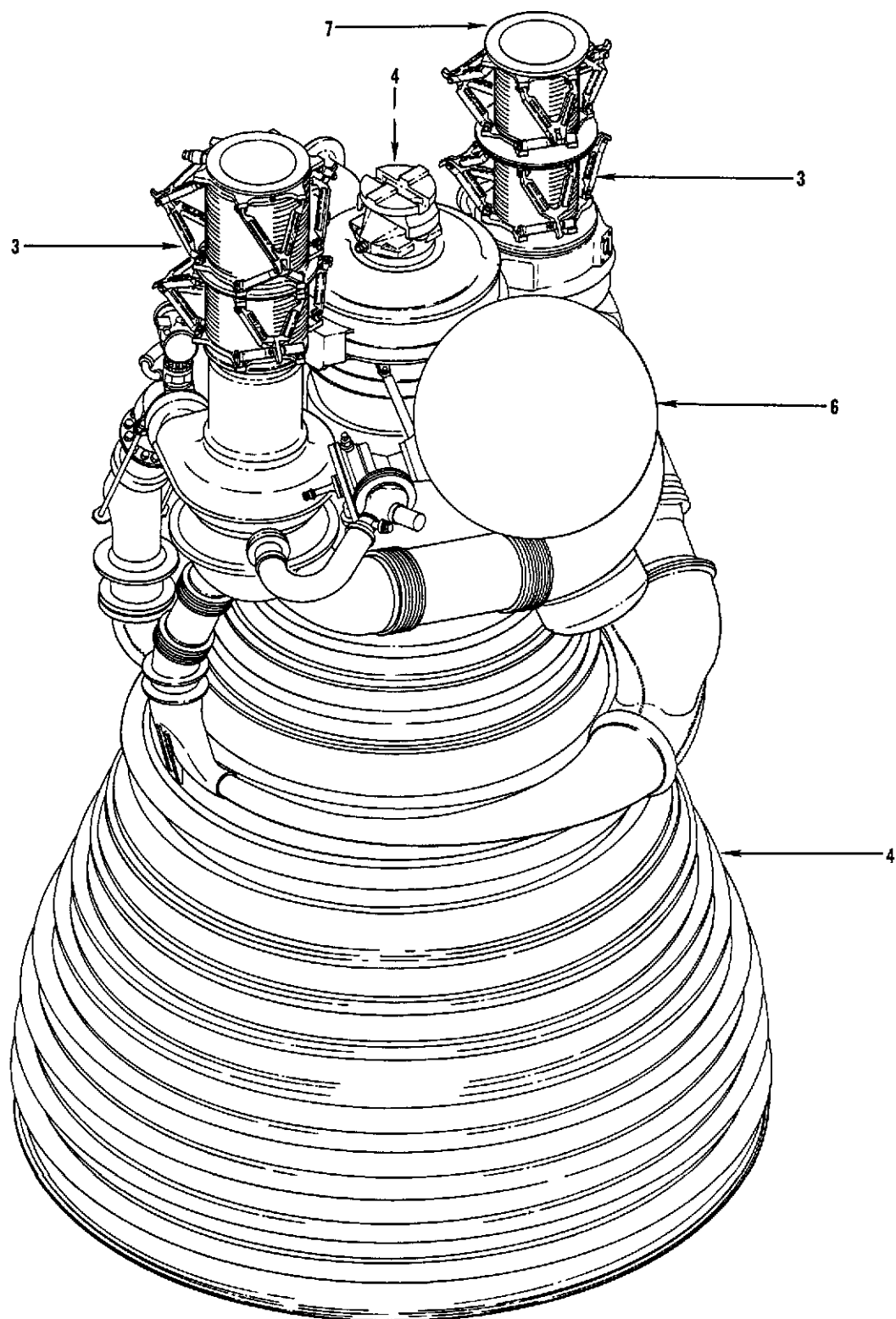


Figure 1. J-2 Rocket Engine Assembly (Sheet 1 of 2)

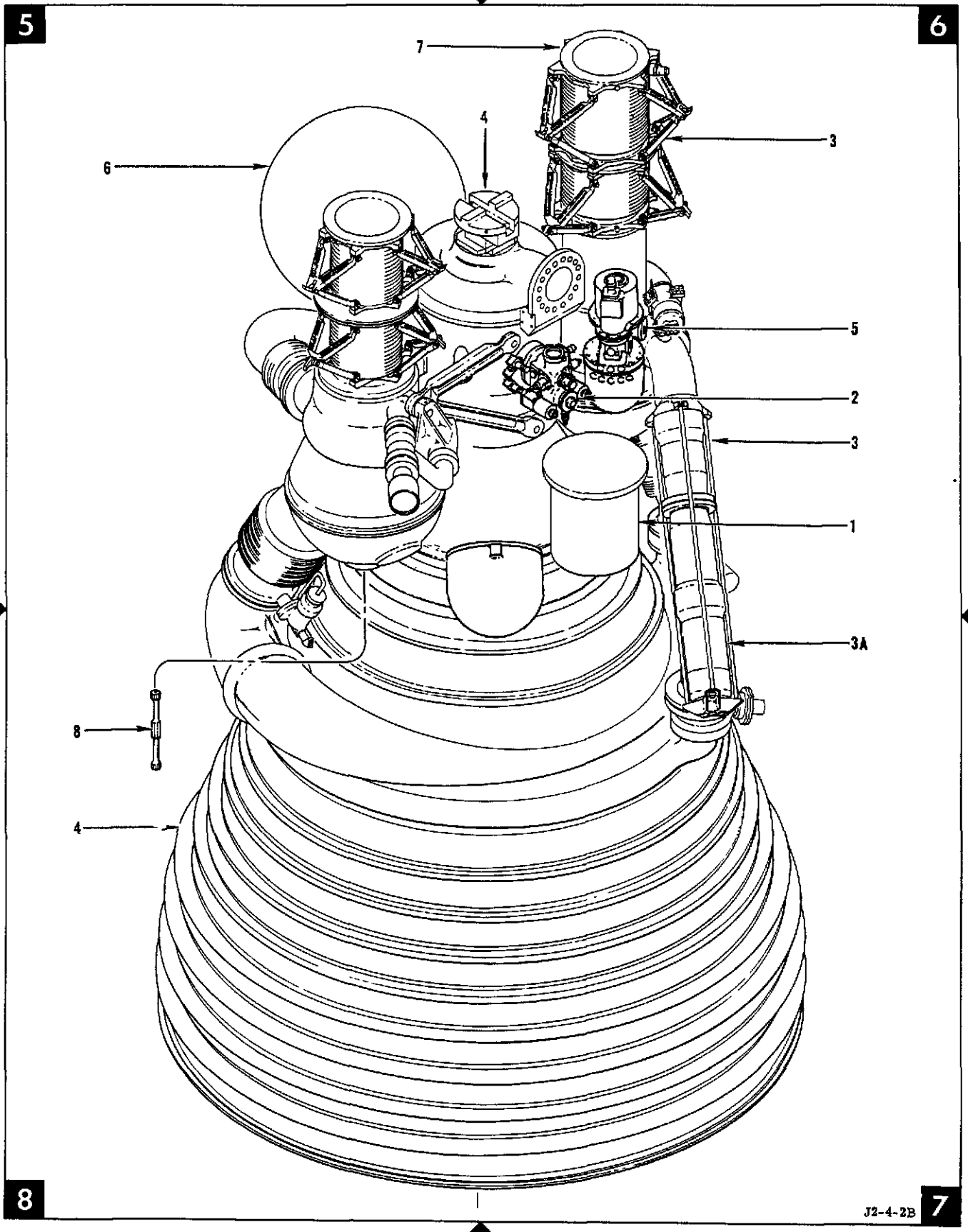
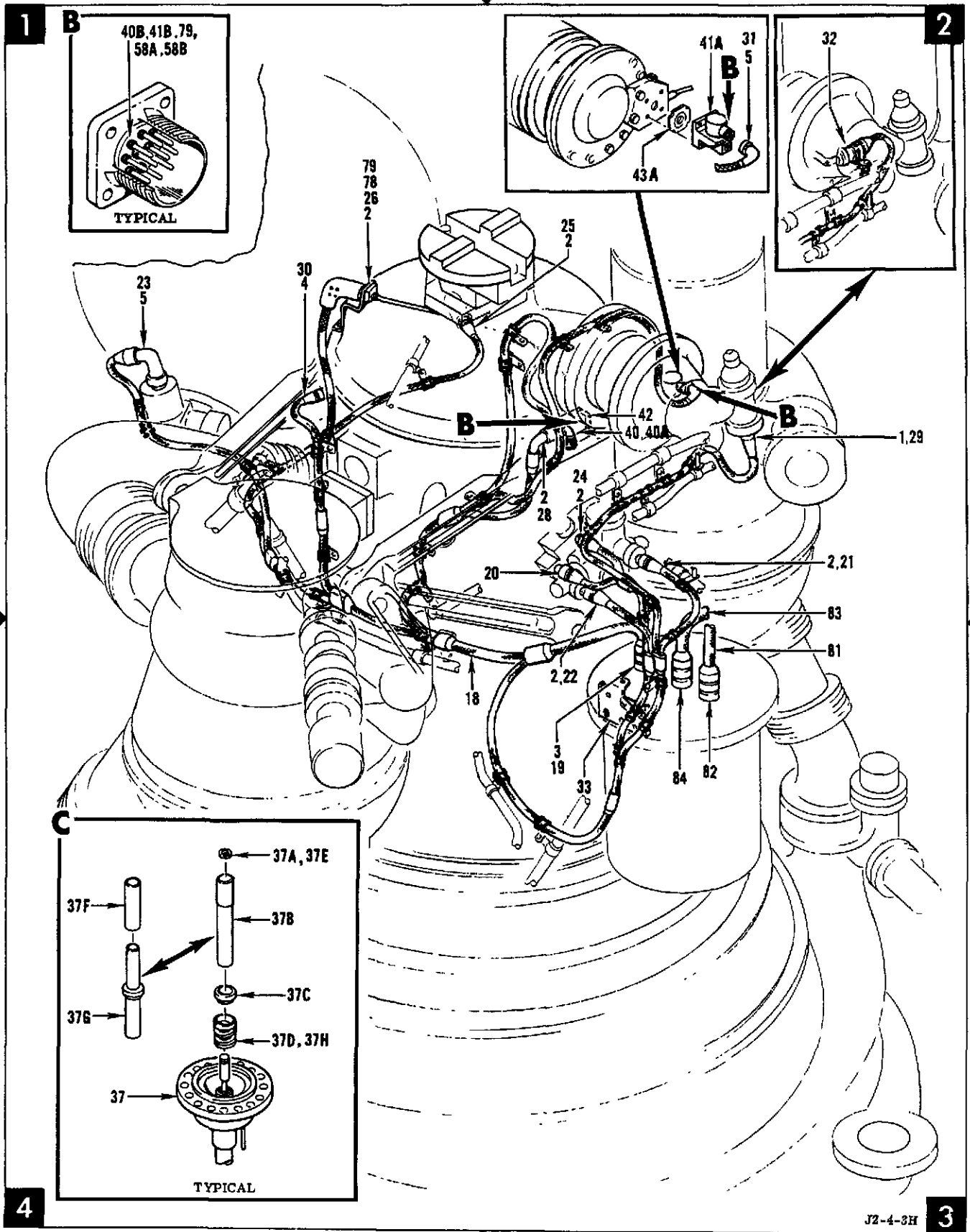


Figure 1. J-2 Rocket Engine Assembly (Sheet 2 of 2)

Section II
Rocket Engine

R-3825-4

FIG. & INDEX NO.	ZONE NO.	PART NUMBER	DESCRIPTION							UNITS PER ASSY.	USABLE ON CODE
			1	2	3	4	5	6	7		
1- 1		103826 ✓	ENGINE ASSY, Rocket, J-2							1	
- 1	6	556101	ELECTRICAL CONTROL SYSTEM INSTL (See figure 2 for breakdown)							1	
- 2	6	556101	PNEUMATIC CONTROL SYSTEM INSTL (Engines J-2048 THRU J-2056)							1	
			(See figure 3 for breakdown)								
- 2	6	556101	PNEUMATIC CONTROL SYSTEM INSTL (Engines J-2039-1, J-2062 and J-2075 THRU J-2152) (See figure 4 for breakdown)							1	
- 3	1, 2, 6	406651 ✓	PROPELLANT FEED SYSTEM INSTL (See figure 14 for breakdown)							1	
- 3A	7	406651	COMPONENT THERMAL INSULATION (See figure 56 for breakdown)							1	
- 4	2, 3, 6, 8	206276 ✓	THRUST CHAMBER AND GIMBAL INSTL (See figure 21 for breakdown)							1	
- 5	6	303928 ✓	GAS GENERATOR AND EXHAUST INSTL (See figure 22 for breakdown)							1	
- 6	2, 5	303927	START SYSTEM INSTL (See figure 24 for breakdown)							1	
- 6	2, 5	307570	START SYSTEM GROUP ASSEMBLY (Engines J-2075 THRU J-2152)							1	
			(See figure 25 for breakdown)								
- 7	1, 5	103850	CUSTOMER CONNECT ELECTRICAL SYSTEM INSTL (See figure 28							1	
			for breakdown)								
- 7	1, 5	103850	CUSTOMER CONNECT FLUID SYSTEM INSTL (See figure 29 for breakdown)							1	
		702500	INSTRUMENTATION STATIC VEHICLE TEST INSTL (See figure 30							1	
			for breakdown)								
		702527	FLIGHT INSTRUMENTATION SYSTEM INSTL (See figures 31 and 32							1	
			for breakdown)								
		105810	MARKINGS ASSY, Identification							1	
		RD171-1022-0001	PLATE							AR	
		RD171-1025-0001	PLATE							1	
		RK395-00001	PROTECTIVE CLOSURE INSTALLATION, J-2 ENGINE							1	
			ENGINE CLOSURES (See figure 33)							1	
			COMPONENT CLOSURES (See figures 34 THRU 55)							1	
		RK395-00001	ALTERNATE CLOSURE INSTALLATION (See figure 55A for breakdown)							1	
		No Number	COUPLING NUT GASKETS AND CLOSURES FOR ELECTRICAL PLUGS AND							NP	
			RECEPTACLES (See figure 57)								
- 8		No Number	COMPONENT INTERCHANGEABILITY LIST (See figure 58)							NP	
		458168-3	SHAFT, Quill, drive, accessory, oxidizer turbopump (Replaces 458168 for							1	
			spares) (Component of kit 18-651210-10)								



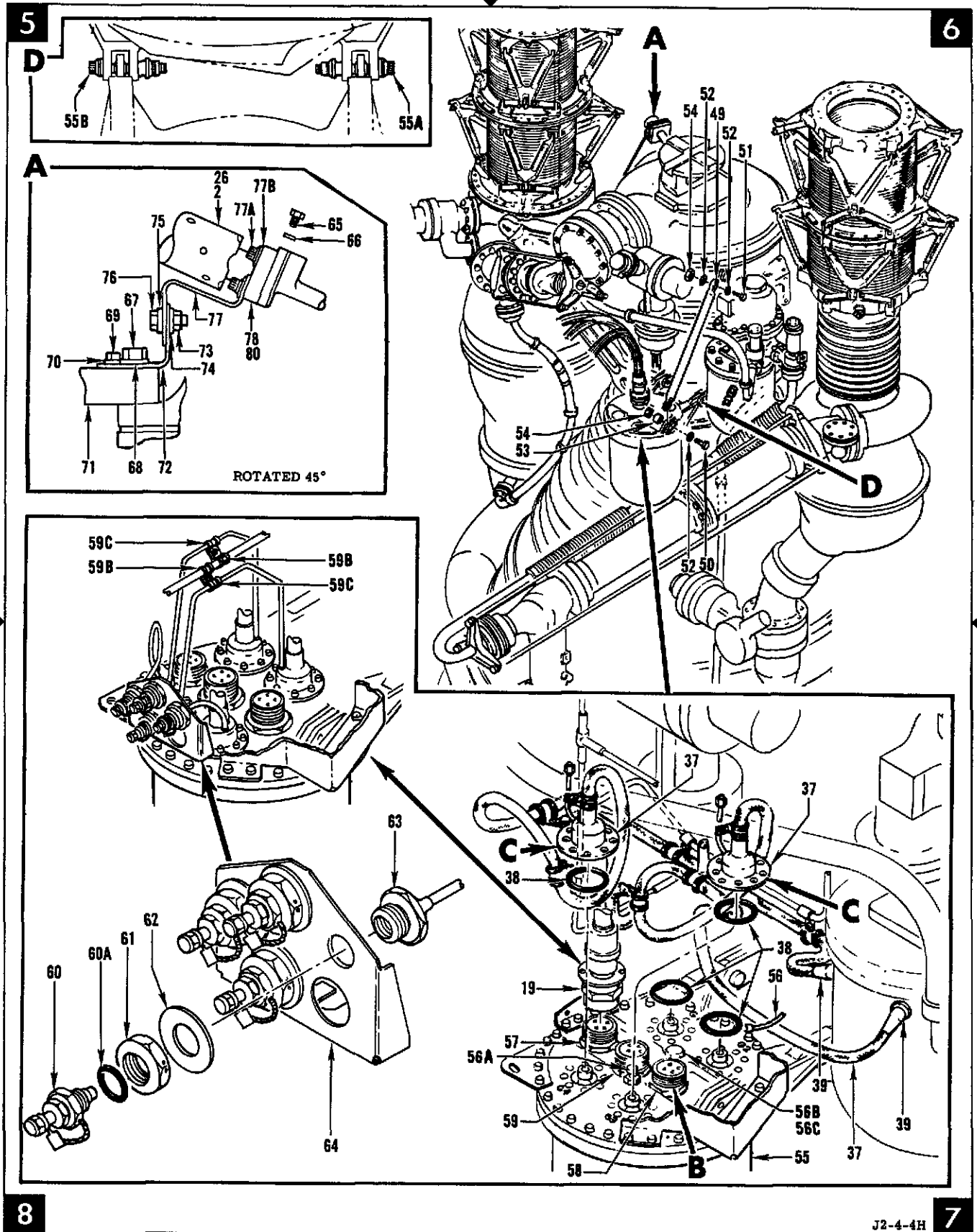


Figure 2. Electrical Control System Installation (Sheet 2 of 2)

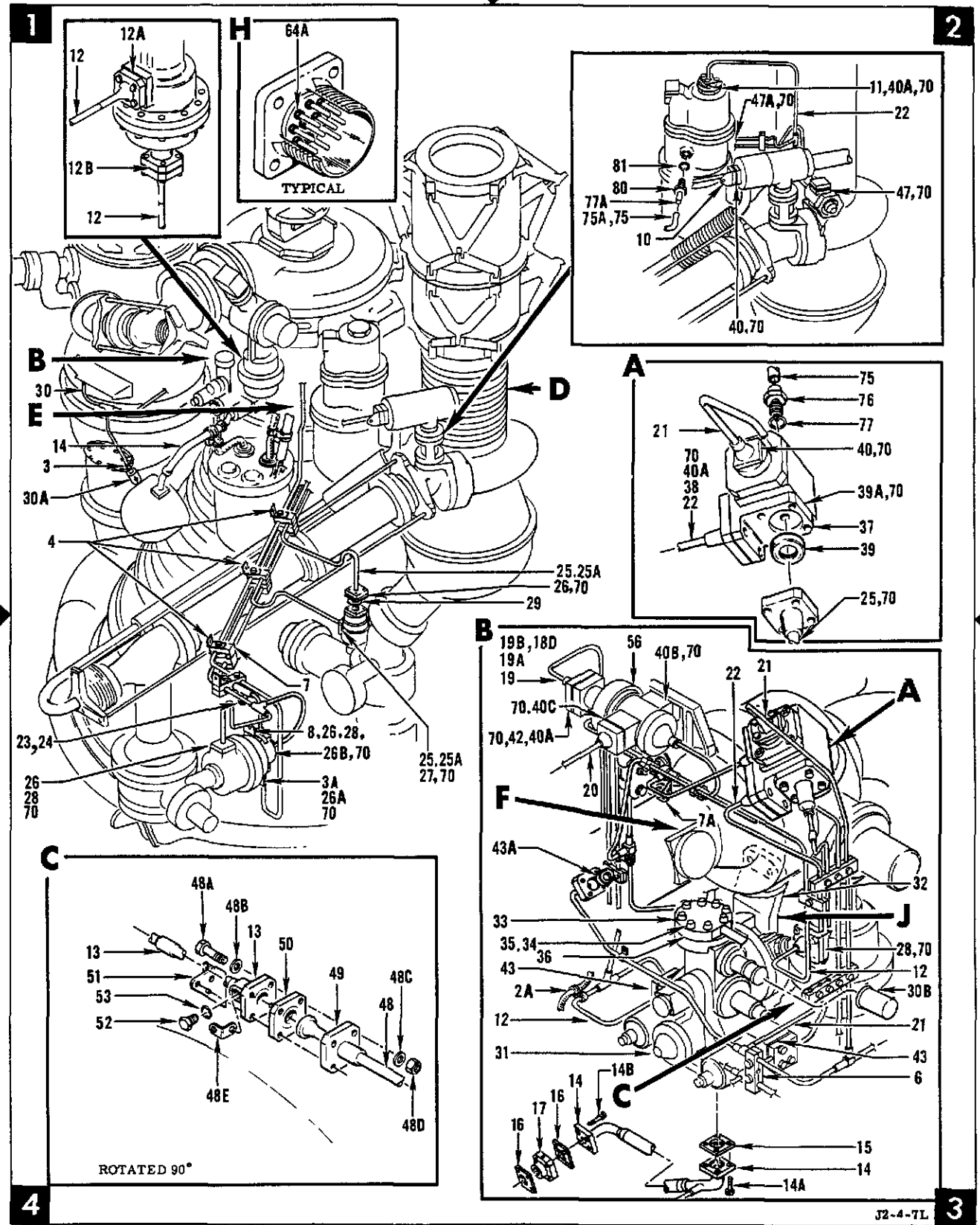
FIG & INDEX NO	ZONE NO	PART NUMBER	DESCRIPTION							UNITS PER ASSY		USABLE ON CODE
			1	2	3	4	5	6	7			
CONTROL SYSTEM INSTALLATION												
2-		556101	ELECTRICAL CONTROL SYSTEM INSTL (Engines J-2046)							REF		
			(See figure 1, index 1, for REQMT)									
		556101	ELECTRICAL CONTROL SYSTEM INSTL (Engines J-2056 and J-2062) . .							REF		
			(See figure 1, index 1, for REQMT)									
		556101	ELECTRICAL CONTROL SYSTEM INSTL (Engines J-2039-1, J-2075 . . .								REF	
			THRU J-2152) (See figure 1, index 1, for REQMT)									
		RE127-2001-0006	CLAMP							1	1	
		RE127-2001-0010	CLAMP							1	1	
		RE127-2001-0014	CLAMP							1	1	
		RE127-2001-0018	CLAMP							1	1	
		RE127-2004-0002	CLAMP							4	4	
		RE127-2004-0014	CLAMP							4	4	
		RE127-2005-0006	CLAMP							1	1	
		RE127-2005-0007	CLAMP							23	23	
		RE127-2005-0008	CLAMP							15	15	
		RE127-2005-0010	CLAMP							7	7	
		RE127-2005-0012	CLAMP							9	9	
		RE127-2005-0014	CLAMP							10	10	
		RE127-2005-0016	CLAMP							1	1	
		RE127-2005-0021	CLAMP							1	1	
		NAS1101C3-8	SCREW (AP)							1	1	
		NAS1101C3-10	SCREW (AP)							1	1	
		NAS1101C3-16	SCREW (AP)							1	1	
		NAS1101C3-20	SCREW (AP)							1	1	
		LD153-0013-0001	WASHER (AP)							1	1	
		NAS679C3W	NUT (AP)							1	1	
		NAS43HT3-20	SPACER							1	1	
		NAS43HT3-26	SPACER							5	5	
		NAS43HT3-80	SPACER							1	1	
		NAS1057W3-075	SPACER							1	1	
- 1	2	19-501743-2	BOOT, Armored harness flexible							1	1	
- 2	1,2,3	19-501743-3	BOOT, Armored harness flexible							7	7	
- 3	3	19-501743-17	BOOT, Armored harness flexible							1	1	
- 4	1	19-501745-2	BOOT, Electrical, 90-degree							1	1	
- 5	1,2	19-501745-3	BOOT, Electrical, 90-degree							2	2	
- 6												
THRU												
-17		DELETED										
-18	4	502951	ARMORED HARNESS ASSY, Flexible, engine control (Control							1		
			system armored harness)									
-18	4	502951-11	ARMORED HARNESS ASSY, Flexible, engine control (Control								1	
			system armored harness)									
		19-704548	TUBE, Heat shrinkable (Use -1, -2, and -3 as applicable)							AR	AR	
		19-704549	MOLDING, Heat shrinkable (Use -1 and -2 as applicable)							AR	AR	
		19-704550	TUBE, Heat shrinkable (Use -2 and -3 as applicable)							AR	AR	
-19	3,7	501727-481	PLUG ASSY, Electrical, 28-21P shell size (Altered from							1	1	
			RD414-1009-0061) (P3)									
-20	1	501727-91	PLUG ASSY, Electrical, 14S-2S shell size (Altered from							1	1	
			RD414-1009-0010) (P13)									
-21	2	501727-91	PLUG ASSY, Electrical, 14S-2S shell size (Altered from							1	1	
			RD414-1009-0010) (P14)									
-22	3	501727-91	PLUG ASSY, Electrical, 14S-2S shell size (Altered from							1	1	
			RD414-1009-0010) (P15)									
-23	1	502272-111	PLUG ASSY, Electrical, 14S-5S shell size (Altered from							1	1	
			RD414-1009-0012) (P16)									
-24	2	501727-91	PLUG ASSY, Electrical, 14S-2S shell size (Altered from							1	1	
			RD414-1009-0010) (P17)									
-25	2	501727-91	PLUG ASSY, Electrical, 14S-2S shell size (Altered from							1	1	
			RD414-1009-0010) (P18)									
-26	1	501727-131	PLUG ASSY, Electrical, 14S-6S shell size (Altered from							1	1	
			RD414-1009-0014) (P19)									
-27		DELETED										
-28	2	501727-111	PLUG ASSY, Electrical, 14S-5S shell size (Altered from							1	1	
			RD414-1009-0012) (P20)									
-29	2	501727-41	PLUG ASSY, Electrical, 10SL-3S shell size (Altered from							1	1	
			RD414-1009-0005) (P21)									
-30	1	502272-41	PLUG ASSY, Electrical, 10SL-3S shell size (Altered from							1	1	
			RD414-1009-0005) (P22)									
-31	2	502272-111	PLUG ASSY, Electrical, 14S-5S shell size (Altered from							1	1	
			RD414-1009-0012) (P26)									
-32	2	502957	RECEPTACLE ASSY, Jumper, 10SL-3P shell size (See figure 28, . . .							1	1	
			index 86, for additional REQMT) (J21)									

Section II
Control System

R-3825-4

FIG. & INDEX NO	ZONE NO	PART NUMBER	DESCRIPTION	UNITS PER ASSY.			USABLE ON CODE
			1 2 3 4 5 6 7				
2-33	3	502836	BRACKET, Harness support, electrical control package (See figure 28, index 87, for additional REQMT)	1	1		
		NAS1101C4-10	SCREW (AP)	3	3		
		LD153-0013-0002	WASHER (AP)	3	3		
		LD153-0010-0010	WASHER (AP)	3	3		
		NAS679C4W	NUT (AP)	3	3		
-34		DELETED					
-35		DELETED					
-36	8	558121	BRACKET, Support, Schraeder valve (Pressurizing valve)	1	1	1	
-37	4,7	651389	SPARK IGNITER AND CABLE ASSY, Integral high voltage surface gap (Gas generator spark igniter cable)	2	2	2	
-37	4,7	NA5-27448	SPARK IGNITER AND CABLE ASSY, Integral high voltage surface gap (Gas generator spark igniter cable) (Alternate 651389)	2	2	2	
-37	4,7	NA5-27448T1	SPARK IGNITER AND CABLE ASSY, Integral high voltage surface gap (Gas generator spark igniter cable) (Replaces 651389 or NA5-27448 for spares)	2	2	2	
		RD111-1009-6310	BOLT (AP)	8	8	8	
		LD153-0013-0001	WASHER (AP)	6	6	6	
			PARTIAL BREAKDOWN FOLLOWS				
-37A	4	12553	RING, Retaining (MFD by 83311) (Alternate MS16624-18) (NHA NA5-27448 or NA5-27448T1)	1	1	1	
-37B	4	70500	INSULATOR (MFD by 83311) (NHA NA5-27448 or NA5-27448T1)	1	1	1	
-37C	4	14277	GROMMET (MFD by 83311) (NHA NA5-27448 or NA5-27448T1)	1	1	1	
-37D	4	74789	SPRING ASSY (MFD by 83311) (NHA NA5-27448 or NA5-27448T1)	1	1	1	
-37E	4	7604	WASHER (MFD by 81482) (NHA 651389)	1	1	1	
-37F	4	51238	CONNECTOR (MFD by 81482) (NHA 651389)	1	1	1	
-37G	4	61595	GROMMET SLEEVE (MFD by 81482) (NHA 651389)	1	1	1	
-37H	4	7612	SPRING ASSY (MFD by 81482) (NHA 651389)	1	1	1	
-38	7	RD262-4006-0225	O-RING (Interchangeable with NAS1593-225)	4	4	4	
-39	7	121314-2	SEAL (MFD by 08199)	2	2	2	
		RD273-1020-1002	PLUG AND BLEEDER	1	1	1	
		RD261-6001-0001	GASKET	1	1	1	
		DELETED					
-40							
-40A	2	308390	SWITCH, Pressure-actuated, calibrationable (Mainstage OK pressure switch) (J20)	1	1	1	
		TS1101C4H16M	SCREW (MFD by 06725) (AP)	2	2	2	
		TS1101C4H28M	SCREW (MFD by 06725) (AP)	2	2	2	
		LD153-0013-0002	WASHER (AP)	4	4	4	
-40B	1	RD421-5001-0016	INSULATOR (NHA 103850)	5	5	5	
-41		DELETED					
-41A	2	308390	SWITCH, Pressure-actuated, calibrationable (Mainstage OK pressure switch) (J26)	1	1	1	
		TS1101C4H16M	SCREW (MFD by 06725) (AP)	2	2	2	
		TS1101C4H28M	SCREW (MFD by 06725) (AP)	2	2	2	
		LD153-0013-0002	WASHER (AP)	4	4	4	
-41B	1	RD421-5001-0016	INSULATOR (NHA 103850)	5	5	5	
-42	2	459709	SEAL, Pressure-actuated, cryogenic	1	1	1	
-43		DELETED					
-43A	2	459709	SEAL, Pressure-actuated, cryogenic	1	1	1	
-44							
THRU							
-48B		DELETED					
-49	6	502459	ROD ASSY, Support, electrical package	1			ARC
-49	6	502459-11	ROD ASSY, Support, electrical package	1	1	1	ERA
-50	6	RD111-4009-6518	BOLT (AP)	1	1	1	
-51	6	RD111-4009-6515	BOLT (AP)	1	1	1	
-52	6	LD153-0013-0003	WASHER (AP)	3	3	3	
-53	6	NAS43DD5-8	SPACER (AP)	1	1	1	
-54	6	RD114-8005-2005	NUT (AP)	2	2	2	
		RE131-5001-0001	BEARING	2	2	2	
		502459-3	ROD, Support, electrical package	1	1	1	
-55	7	502670-181 (a)	CONTROL ASSY, Electrical (May replace 502670 basic, -11, ... -21, -31, -51, -61, -71, -111, -121, -151, -161, -171, -211, -221, -251, -261, -271 for spares) (Engines not incorporating MD380 or MD381 change)	1	1	1	
-55	7	502670-251 (a)	CONTROL ASSY, Electrical (May replace 502670 basic, -11, ... -21, -31, -51, -61, -71, -111, -121, -151, -161, -171, -181, -211, -221 for spares) (Engines not incorporating MD380 or MD381 change)	1	1	1	VBN
-55	7	502670-261 (a)	CONTROL ASSY, Electrical (May replace 502670 basic, -11, ... -21, -31, -51, -61, -71, -111, -121, -151, -161, -171, -181, -211, -221, -251 for spares) (Engines not incorporating MD380 or MD381 change)	1	1	1	VBD
-55	7	502670-381	CONTROL ASSY, Electrical (Engines incorporating MD380 change)			1	QVB
-55	7	502670-581	CONTROL ASSY, Electrical (Engines incorporating MD381 change)	1	1	1	QWB
-55A	5	RD111-4009-6523	BOLT (AP)	1	1	1	
-55B	5	RD111-4009-6520	BOLT (AP)	1	1	1	
		LD153-0013-0003	WASHER (AP)	2	2	2	
		NAS43DD5-11	SPACER (AP)	2	2	2	
		RD114-8005-2005	NUT (AP)	2	2	2	
			(a) For interchangeability status, refer to the Component Interchangeability List.				

FIG. & INDEX NO	ZONE NO.	PART NUMBER	DESCRIPTION							UNITS PER ASSY.			USABLE ON CODE
			1	2	3	4	5	6	7				
2-			PARTIAL BREAKDOWN FOLLOWS										
-56	7	MS25083-2BC8	. . .	JUMPER ASSY						1	1	1	
		NAS1101C3-10	. . .	SCREW (AP)						1	1	1	
		RD153-5004-0003	. . .	WASHER (AP)						1	1	1	
-56A	7	558272-41	. . .	VALVE ASSY, Air filler (Pressurizing valve) (Altered from						1	1	1	
			. . .	RD284-1001-0002) (Replaces 558272-31) (See ECP J2-711)									
			. . .	(See figure 7 for partial breakdown)									
-56B	7	AN814-4DL	. . .	PLUG AND BLEEDER						1	1	1	
-56C	7	MS29512-04	. . .	PACKING						1	1	1	
-57	7	19-502958-2	. . .	RECEPTACLE ASSY, Jamnut, glass sealed, 28-21S						1	1	1	
			. . .	shell size (J3)									
-57A		DELETED											
-58	7	19-502958-3	. . .	RECEPTACLE ASSY, Jamnut, glass sealed, 32-7P						1	1	1	
			. . .	shell size (J1)									
-58A	1	RD421-5001-0012	. . .	INSULATOR (NHA 103850)						7	7	7	
-58B	1	RD421-5001-0016	. . .	INSULATOR (NHA 103850)						28	28	28	
-59	7	19-502958-6	. . .	RECEPTACLE ASSY, Jamnut, glass sealed, 36-10S						1	1	1	
			. . .	shell size (J2)									
-59A		DELETED											
-59B	5	RE127-2005-0004	. . .	CLAMP								2	
-59C	5	RD127-2004-0002	. . .	CLAMP								2	
		NAS1101C3-10	. . .	SCREW (AP)								2	
		LD153-0013-0001	. . .	WASHER (AP)								2	
		NAS879C3W	. . .	NUT (AP)								2	
		651395	. . .	SLEEVE, Pressurizing boss, spark igniter								4	
-60	8	558272-41	. . .	VALVE ASSY, Air filler (Pressurizing valve) (Altered from						4	4	4	KDB QRB
			. . .	RD284-1001-0002) (Replaces 558272-31) (See ECP J2-711)									
			. . .	(See figure 7 for partial breakdown)									
-60A	8	MS29513-111	. . .	PACKING						1	1	1	
-61	8	RD114-1003-1010	. . .	NUT						4	4	4	
-62	8	LD153-0010-0025	. . .	WASHER						4	4	4	
-63	8	651394	. . .	BOSS ASSY, Pressurizing, spark igniter (Welded)						4	4	4	
-64		DELETED											
-65	5	RD273-1020-1002	. . .	PLUG AND BLEEDER						1	1	1	
-66	5	RD261-6001-0001	. . .	GASKET						1	1	1	
-67	5	RD111-1009-3622	. . .	BOLT						1	1	1	
-68	5	704751-3	. . .	WASHER, Increased "O" diameter						1	1	1	
-69	5	RD111-1009-3406	. . .	BOLT						1	1	1	
-70	5	704751	. . .	WASHER, Increased "O" diameter						1	1	1	
-71	5	106468	. . .	CLEVIS, Brace support (See figure 29, index 82, for REQMT)						REF	REF	REF	
-72	5	558488	. . .	SUPPORT, Ignition detector probe, lower						1	1	1	
-73	5	NAS879C4W	. . .	NUT						2	2	2	
-74	5	704751	. . .	WASHER, Increased "O" diameter						2	2	2	
-75	5	704751	. . .	WASHER, Increased "O" diameter						2	2	2	
-76	5	RD111-1010-3410	. . .	BOLT						2	2	2	
-77	5	558489	. . .	SUPPORT, Ignition detector probe, upper						1	1	1	
-77A	5	RD111-4008-8407	. . .	BOLT						4	4	4	
-77B	5	LD153-0013-0002	. . .	WASHER						4	4	4	
-78	5	500750	. . .	PROBE, Ignition detector (Welded) (J19)						1	1	1	
-79	1	RD421-5001-0016	. . .	INSULATOR (NHA 103850)						6	6	6	
-80	5	408767-5	. . .	SEAL, Pressure-actuated, cryogenic						1	1	1	
-81	3	503165	. . .	ARMORED HARNESS ASSY, Flexible, engine control package						REF			
			. . .	to P51 (See figure 28, index 17, for REQMT)									
-81	3	503165-11	. . .	ARMORED HARNESS ASSY, Flexible, engine control package							REF		
			. . .	to P51 (See figure 28, index 17, for REQMT)									
-81	3	503160 (a)	. . .	ARMORED HARNESS ASSY, Flexible, engine control package								REF	
			. . .	to P51 (See figure 28, index 17, for REQMT)									
-82	3	501727-511	. . .	PARTIAL BREAKDOWN FOLLOWS									
			. . .	PLUG ASSY, Electrical, 32-7S shell size (Electrical control						REF	REF		
			. . .	assembly - ECA) (Altered from RD414-1009-0064) (P1)									
			. . .	(See figure 28, index 18, for REQMT)									
-82	3	503172-511	. . .	PLUG ASSY, Electrical, 32-7S shell size (Electrical control								REF	
			. . .	assembly - ECA) (Altered from NA5-27556T3287) (P1)									
			. . .	(See figure 28, index 18, for REQMT)									
-83	3	503166	. . .	ARMORED HARNESS ASSY, Flexible, control package to P54						REF			
			. . .	(See figure 28, index 21, for REQMT)									
-83	3	503166-11	. . .	ARMORED HARNESS ASSY, Flexible, control package to P54							REF		
			. . .	(See figure 28, index 21, for REQMT)									
-83	3	503158 (a)	. . .	ARMORED HARNESS ASSY, Flexible, control package to P54								REF	
			. . .	(See figure 28, index 21, for REQMT)									
-84	3	501727-561	. . .	PARTIAL BREAKDOWN FOLLOWS									
			. . .	PLUG ASSY, Electrical, 36-10P shell size (Electrical control						REF	REF		
			. . .	assembly) (Altered from RD414-1009-0069) (P2)									
			. . .	(See figure 28, index 23, for REQMT)									
-84	3	503162	. . .	PLUG ASSY, Electrical, 36-10P shell size (Electrical control								REF	
			. . .	assembly) (Altered from NA5-27556T3610P) (P2)									
			. . .	(See figure 28, index 23, for REQMT)									
(a) For interchangeability status, refer to the Component Interchangeability List.													
Figure 3 deleted.													



All data on pages 2-11 through 2-16 deleted.

Figure 4 Pneumatic Control System Installation (Sheet 1 of 3)

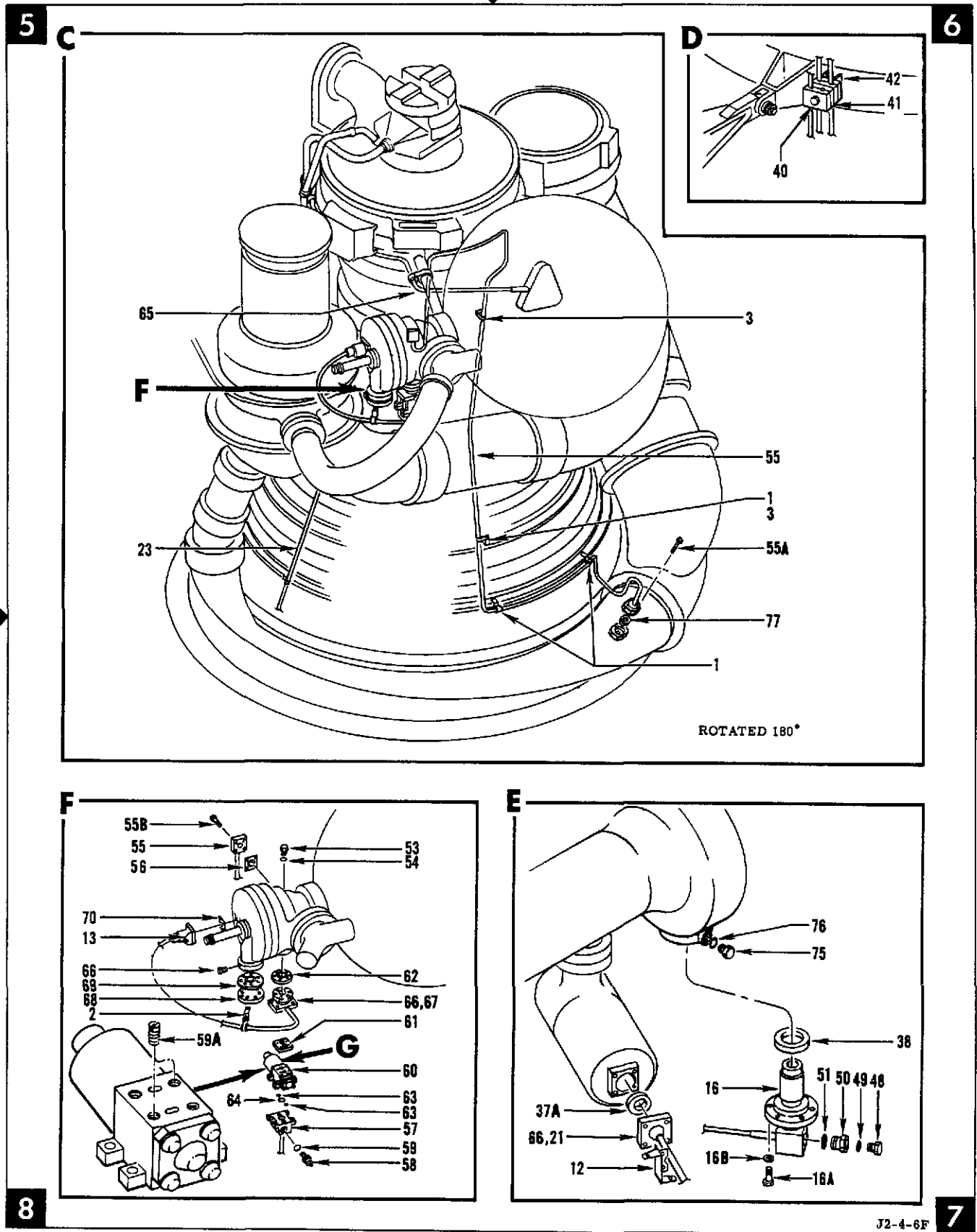


Figure 3. Pneumatic Control System Installation (Engines J-2046 and J-2056) (Sheet 2 of 3)

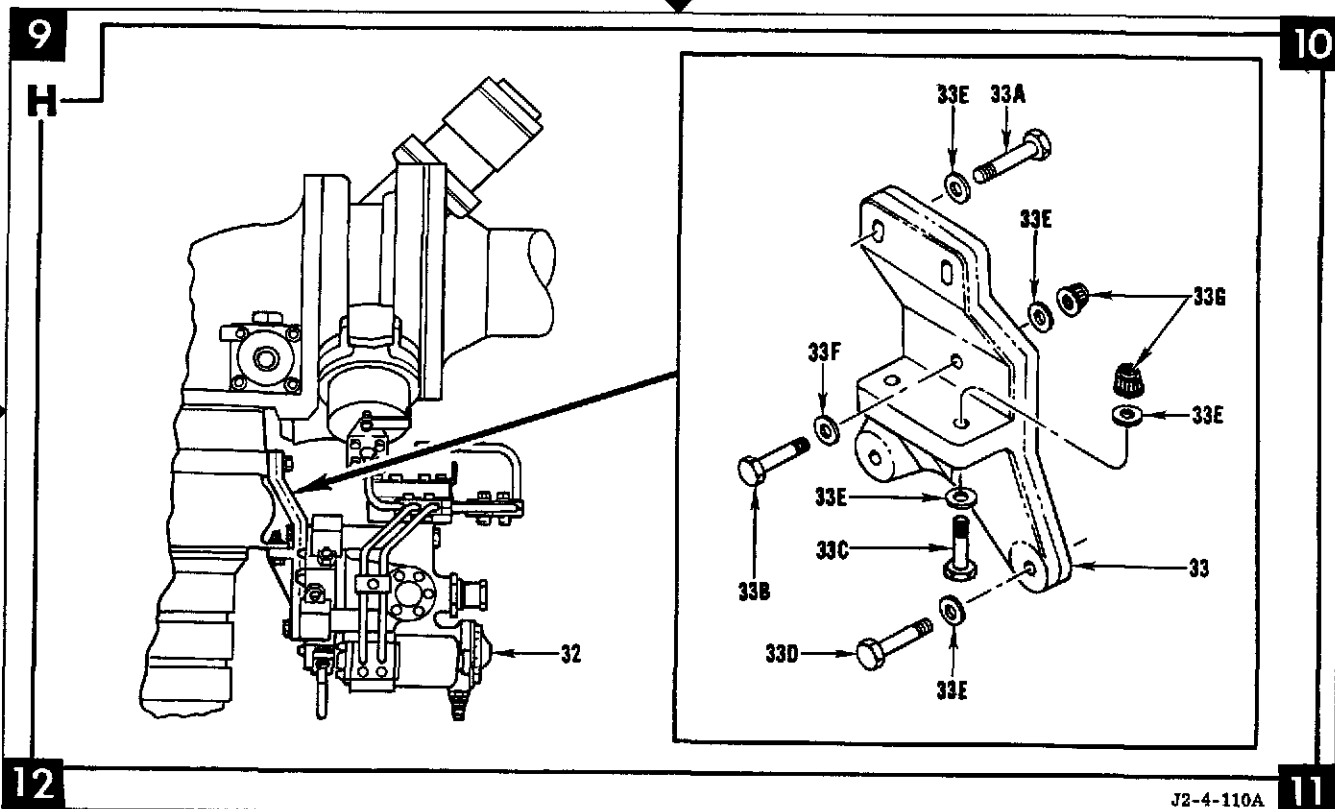


Figure 3. Pneumatic Control System Installation (Engines J-2046 and J-2056) (Sheet 3 of 3)

FIG. & INDEX NO.	ZONE NO.	PART NUMBER	DESCRIPTION							UNITS PER ASSY.		USABLE ON CODE
			1	2	3	4	5	6	7	REF	REF	
3-		556101	CONTROL SYSTEM INSTALLATION									
		556101	PNEUMATIC CONTROL SYSTEM INSTL (Engine J-2046) (See figure 1, index 2) . . .							REF	REF	
			PNEUMATIC CONTROL SYSTEM INSTL (Engine J-2056) (See figure 1, index 2) . . .									
		RD127-1001-0002	CLAMP							30	30	
		RD127-1001-0003	CLAMP								4	
		RD127-1001-0004	CLAMP							8	8	
		RD127-1001-0005	CLAMP							2	2	
		NAS1101C3-16	SCREW (AP)							1	1	
		LD153-0013-0001	WASHER (AP)							1	1	
		NAS679C3W	NUT (AP)							1	1	
		RE127-2001-0002	CLAMP							13	13	
		RE127-2001-0004	CLAMP							3	3	
		RE127-2001-0006	CLAMP							5	5	
		RE127-2001-0008	CLAMP							1	1	
		RE127-2001-0009	CLAMP							1	1	
		RE127-2001-0014	CLAMP							1	1	
		RE127-2005-0004	CLAMP							6	6	
		RE127-2005-0006	CLAMP							2	2	
		RE127-2005-0008	CLAMP							1	1	
		RE127-2005-0012	CLAMP							2	2	
		RE127-2005-0013	CLAMP							1	1	
		RE127-2005-0014	CLAMP							10	10	
		RE127-2005-0025	CLAMP							1	1	
		NAS1101C3-8	SCREW (AP)							1	1	
		NAS1101C3-10	SCREW (AP)							1	1	
		NAS1101C3-16	SCREW (AP)							1	1	
		LD153-0013-0001	WASHER (AP)							1	1	
		NAS679C3W	NUT (AP)							1	1	

FIG. & INDEX NO.	ZONE NO.	PART NUMBER	DESCRIPTION	UNITS PER ASSY.	USABLE ON CODE
			1 2 3 4 5 6 7		
3-		NAS43DD3-21	SPACER	1	1
		NAS43DD1-40	SPACER	3	3
		NAS43DD6-6	SPACER	1	1
		RD191-4002-1004	LUG	1	1
		RD191-4002-1005	LUG	1	1
		MS9101-55	BRACKET	1	1
- 1	6	502833-3	BRACKET, Harness, support	3	3
- 2	8	502833-9	BRACKET, Harness, support	1	1
- 2A	3	502833-9	BRACKET, Harness, support	1	1
- 3	1, 6	502833-13	BRACKET, Harness, support	3	3
- 3A	4	502833-13	BRACKET, Harness, support	1	1
- 4	3	502833-15	BRACKET, Harness, support	1	1
- 5	1, 4	502833-19	BRACKET, Harness, support	4	4
- 6		DELETED			
- 7	4	557885	CLAMP, Line block	2	2
- 8		DELETED			
- 9	3	557877	CLAMP, Line block	2	2
		NAS1101C3-16	SCREW (AP)	2	2
		LD153-0013-0001	WASHER (AP)	4	4
		NAS879C3W	NUT (AP)	2	2
-10	4	555989	BRACKET, Line support	1	1
-11	4	502850	BRACKET, Harness support, main fuel valve	1	1
-12	7	502854	BRACKET, Harness support, LOX bleed valve	1	1
-13	2, 8	502835	BRACKET, Harness support, LOX and fuel bleed valves	2	2
-14	2	555886	BRACKET, Tube support	1	1
-15	2, 3	557884	MANIFOLD ASSY, Mainstage control (Welded) (Engines not incorporating MD236 change)	1	1
-15	2, 3	557884-11	MANIFOLD ASSY, Mainstage control (Welded) (Engines incorporating MD236 change)	1	1
		557898	MANIFOLD ASSY, Mainstage control (Welded) (Field configuration for 557884 incorporating MD165 change, but not incorporating MD236 change)	NP	NP
		557898-11	MANIFOLD ASSY, Mainstage control (Welded) (Field configuration for 557884 incorporating MD165 and MD236 changes)	NP	NP
-15A	2	556426	VALVE ASSY, Restrictor, 1/4 IN. flanged outlet (NHA 557884) (Close port) (See figure 5 for breakdown) (Engines not incorporating MD214 change)	1	1
		RD172-0012-0001	TAPE (PNEUMATIC)	AR	AR
		RD172-0014-0018	TAPE (HELIUM)	AR	AR
		RD172-0018-0450	TAPE (450 PSI)	AR	AR
-15B	2	404673-3	SEAL, Pressure-actuated, cryogenic	1	1
-15B	2	410876 (a)	SEAL, Pressure-actuated, cryogenic	1	1
		RD111-1009-3416	BOLT (AP)	4	4
		LD153-0013-0002	WASHER, Countersunk (AP)	4	4
-15C	2	404673-3	SEAL, Pressure-actuated, cryogenic	1	1
-15C	2	410876 (a)	SEAL, Pressure-actuated, cryogenic	1	1
		RD111-1009-3417	BOLT (AP)	4	4
		LD153-0013-0002	WASHER, Countersunk (AP)	4	4
-16	4, 7	557918	MANIFOLD ASSY, Purge oxidizer dome and gas generator oxidizer cavity (Welded) (See figure 13 for breakdown)	1	1
-16A	7	RD111-1009-3417	BOLT (AP)	6	6
-16B	7	LD153-0013-0002	WASHER (AP)	6	6
-17	1, 3	NA5-280045	HOSE ASSY, Helium accumulator (Pneumatic accumulator hose) (Welded)	1	1
-17A	3	RD111-1009-3418	BOLT (AP)	4	4
-17B	3	RD111-1009-3417	BOLT (AP)	4	4
-17B	3	RD111-1009-3426	BOLT (AP)	4	4
		LD153-0013-0002	WASHER (AP)	8	8
		RD172-0018-0450	TAPE (450 PSI)	AR	AR
		RD172-0012-0001	TAPE (PNEUMATIC)	AR	AR
		RD172-0014-0018	TAPE (HELIUM)	AR	AR
-18	3	404658-9	SEAL, Pressure-actuated, spacer type, square	1	1
-18	3	410893-3 (a)	SEAL, Pressure-actuated, cryogenic	1	1
-19	3	404673-3	SEAL, Pressure-actuated, cryogenic	2	2
-19	3	410876 (a)	SEAL, Pressure-actuated	2	2
-19A	3	NA5-280167	FILTER ASSY, Helium regulator	1	1
-20	3	557445	TUBE ASSY, Purge, control valve (Purge control valve vent line) (Welded)	1	1
-20	3	558041	TUBE ASSY, Purge, control valve (Purge control valve vent line) (Welded)	1	1
		RD172-0018-0450	TAPE (450 PSI)	AR	AR
		RD172-0018-0025	TAPE (25 PSI)	AR	AR
		RD172-0012-0001	TAPE (PNEUMATIC)	AR	AR
		RD172-0014-0018	TAPE (HELIUM)	AR	AR
-21	3, 7	556146	MANIFOLD ASSY, Bleed valve control (Welded)	1	1
-22	3	557880	MANIFOLD ASSY, Ignition control (Welded) (Engines not incorporating MD236 change)	1	1
-22	3	557880-31	MANIFOLD ASSY, Ignition control (Welded) (Engines incorporating MD236 change)	1	1

(a) For interchangeability status, refer to the Component Interchangeability List.

Section II
Control System

R-3825-4

FIG. & INDEX NO.	ZONE NO.	PART NUMBER	DESCRIPTION							UNITS PER ASSY.		USABLE ON CODE
			1	2	3	4	5	6	7			
3-		558035	.	.	MANIFOLD ASSY, Ignition control (Welded) (Field configuration					NP	NP	
					for 557880 incorporating MD184 and MD165 changes,							
		558035-31	.	.	MANIFOLD ASSY, Ignition control (Welded) (Field configuration					NP	NP	
					for 557880 incorporating MD184, MD165, and MD236 changes)							
		RD172-0012-0001	.	.	TAPE (PNEUMATIC)					AR	AR	
		RD172-0014-0018	.	.	TAPE (HELIUM)					AR	AR	
		RD172-0018-0450	.	.	TAPE (450 PSI)					AR	AR	
-23	2, 5	558029	.	.	TUBE ASSY, Vent-purge control valve					1		
		RD172-0018-0450	.	.	TAPE (450 PSI)					AR		
		RD172-0012-0001	.	.	TAPE (PNEUMATIC)					AR		
		RD172-0014-0018	.	.	TAPE (HELIUM)					AR		
		558029-3	.	.	TUBE, 321 CRES, 1/4 IN. OD by 0.028 gage by 100.00 IN. LG					1		
-24	2, 3	557881	.	.	MANIFOLD ASSY, Gas generator control (Welded)					1	1	
		RD111-1009-3417	.	.	BOLT (AP)					16	16	
		RD111-1009-3421	.	.	BOLT (AP)					4	4	
		RD111-1009-3418	.	.	BOLT (AP)					4	4	
		LD153-0013-0002	.	.	WASHER (AP)					24	24	
		558043	.	.	MANIFOLD ASSY, Gas generator control (Welded) (Field					NP	NP	
					configuration for 557881 incorporating MD184 and MD165 changes)							
		RD172-0018-0450	.	.	TAPE (450 PSI)					AR	AR	
		RD172-0012-0001	.	.	TAPE (PNEUMATIC)					AR	AR	
		RD172-0014-0018	.	.	TAPE (HELIUM)					AR	AR	
-25	4	553364	.	.	VALVE ASSY, Relief, low temperature, 1/4 IN. vent (Alternate 553364-21)					1	1	
-26	4	MS28778-4	.	.	PACKING					1	1	
-27	2, 3	557889	.	.	MANIFOLD ASSY, Control, turbine by-pass valve (Welded)					1	1	
					(Engines not incorporating MD236 change)							
-27	2, 3	557889-11	.	.	MANIFOLD ASSY, Control, turbine by-pass valve (Welded)					1	1	
					(Engines incorporating MD236 change)							
		RD111-1009-3416	.	.	BOLT (AP)					4	4	
		RD111-1009-3417	.	.	BOLT (AP)					12	12	
		LD153-0013-0002	.	.	WASHER (AP)					16	16	
		558045	.	.	MANIFOLD ASSY, Control, turbine by-pass valve (Welded) (Field					NP	NP	
					configuration for 557889 incorporating MD165 change,							
					but not incorporating MD236 change)							
		558045-11	.	.	MANIFOLD ASSY, Control, turbine by-pass valve (Welded) (Field					NP	NP	
					configuration for 557889 incorporating MD165 and MD236 changes)							

PARTS LISTS CONTINUED ON SUCCEEDING PAGES

FIG. & INDEX NO	ZONE NO.	PART NUMBER	DESCRIPTION							UNITS PER ASSY.	USABLE ON CODE	
			1	2	3	4	5	6	7			
3-27A	3, 4	556427	. . VALVE ASSY, Restrictor, 1/4 IN. flanged inlet (NHA 557889) (See figure 6 for breakdown)							1	1	
		RD172-0012-0001	. . TAPE (PNEUMATIC)							AR	AR	
		RD172-0014-0018	. . TAPE (HELIUM)							AR	AR	
		RD172-0018-0450	. . TAPE (450 PSI)							AR	AR	
-28	4	404673-3	. SEAL, Pressure-actuated, cryogenic							2	2	
-28	4	410876	(a)	. SEAL, Pressure-actuated, cryogenic						2	2	
-28A	4	404658-9	. SEAL, Pressure-actuated, spacer type, square							1	1	
-28A	4	410893-3	(a)	. SEAL, Pressure-actuated, cryogenic						1	1	
-28B	4	404673-3	. SEAL, Pressure-actuated, cryogenic							1	1	
-28B	4	401220	(a)	. SEAL, Pressure-actuated, cryogenic						1	1	
-28C	2	404673-3	. SEAL, Pressure-actuated, cryogenic							1	1	
-28C	2	410876	(a)	. SEAL, Pressure-actuated, cryogenic						1	1	
-28D	4	404673-3	. SEAL, Pressure-actuated, cryogenic							1	1	
-28D	4	401220	(z)	. SEAL, Pressure-actuated, cryogenic						1	1	
-29	3, 4	RD251-4115-XXXX	. ORIFICE PLATE (Orifice size determined by calibration tests)							3	3	
-30	4	RD251-4115-XXXX	. ORIFICE PLATE (Orifice size determined by calibration tests)							1	1	
-31	1	557876	. MANIFOLD ASSY, Intermediate seal, purge (Oxidizer turbopump intermediate seal purge line) (Welded)							1	1	
-31A	1	557751	. . VALVE ASSY, Check, 1/4 IN. (Oxidizer turbopump intermediate seal purge check valve) (NHA 557876)							1	1	
		RD172-0012-0001	. . TAPE (PNEUMATIC)							AR	AR	
		RD172-0014-0018	. . TAPE (HELIUM)							AR	AR	
		RD172-0018-0400	. . TAPE (400 PSI)							AR	AR	
-31A		DELETED										
-32	3, 12	558130-501	(a)	. REGULATOR ASSY, Helium (Pneumatic control package) (May replace . . . 556947 basic and all dash numbers, 556948 basic and all dash numbers, and 558130-331 for spares) (See figure 8 for breakdown)						1	1	QFB
-32	3, 12	558130-511	(a)	. REGULATOR ASSY, Helium (Pneumatic control package) (May replace . . . 556947 basic and all dash numbers, 556948 basic and all dash numbers, and 558130-321 for spares) (See figure 8 for breakdown)						1	1	QFC
-33	3, 11	557892	(a)	. BRACKET, Pneumatic package support						1	1	
-33A	10	RD111-1009-3415	. BOLT (AP)							2	2	
-33B	11	RD111-1010-3434	. BOLT (AP)							1	1	
-33C	11	RD111-1010-3419	. BOLT (AP)							2	2	
-33D	11	RD111-1009-3416	. BOLT (AP)							2	2	
-33E	10, 11	LD153-0013-0002	. WASHER (AP)							9	9	
-33F	10	LD153-0010-0010	. WASHER (AP)							1	1	
-33G	10	RD114-8005-2004	. NUT (AP)							3	3	
-34	3	554798	. COVER ASSY, Helium inlet, pneumatic package (Welded)							1	1	
-35	3	RD111-4008-6414	. BOLT (AP)							8	8	
-36	3	RD153-5002-0004	. WASHER (AP)							8	8	
-36A	3	404657-3	. SEAL, Pressure-actuated							1	1	
-36A	3	459761-3	(a)	. SEAL, Pressure-actuated, cryogenic						1	1	
-36B	4	RD273-1020-1002	. PLUG AND BLEEDER							2	2	
-36C	4	RD261-6001-0001	. GASKET							2	2	
-37	2, 3, 7	404673-3	. SEAL, Pressure-actuated, cryogenic							4	4	
-37	2, 3, 7	410876	(a)	. SEAL, Pressure-actuated, cryogenic						4	4	
-37A	2, 3, 7	404673-3	. SEAL, Pressure-actuated, cryogenic							3	3	
-37A	2, 3, 7	401220	(a)	. SEAL, Pressure-actuated, cryogenic						3	3	
-37B	3	404673-3	. SEAL, Pressure-actuated, cryogenic							1	1	
-37B	3	459724	(a)	. SEAL, Pressure-actuated						1	1	
-37C	4	404666-7	. SEAL, Pressure-actuated, cryogenic							1	1	
-37C	4	459724	(a)	. SEAL, Pressure-actuated, cryogenic						1	1	
-38	7	404673-7	. SEAL, Pressure-actuated, cryogenic							1	1	
-38	7	401205	(a)	. SEAL, Pressure-actuated, cryogenic						1	1	
-39	3	404665	. SEAL ASSY, Static, spacer type							2	2	
		RD111-1009-3310	. BOLT (AP)							4	4	
		LD153-0013-0001	. WASHER (AP)							4	4	
-40	6	106455	. BOLT, Clamping block							1	1	
-41	6	703564	. BLOCK, Clamping half							4	4	
-42	6	555979	. SPACER, Tube clamp							1	1	
-43	2	404666	. SEAL, Pressure-actuated, spacer type, square flange							1	1	
-43	2	459724	(a)	. SEAL, Pressure-actuated, cryogenic						1	1	
		RD111-1009-3419	. BOLT (AP)							4	4	
		LD153-0013-0002	. WASHER (AP)							4	4	
-44	4	557417	. TUBE ASSY, LOX purge, gas generator (Welded)							1	1	

(a) For interchangeability status, refer to the Component Interchangeability List.

(a) For interchangeability status, refer to the Component Interchangeability List.

Section II
Control System

R-3825-4

FIG. & INDEX NO.	ZONE NO.	PART NUMBER	DESCRIPTION							UNITS PER ASSY.	USABLE ON CODE
			1	2	3	4	5	6	7		
3-44A	4	RD111-1010-3316	.	BOLT (AP)	.	.	.	.	.	4	4
-44B	4	LD153-0013-0001	.	WASHER (AP)	.	.	.	.	.	2	2
-44C	4	RD191-4002-1005	.	LUG (AP)	.	.	.	.	.	1	1
-44D	4	RD114-8005-2003	.	NUT (AP)	.	.	.	.	.	4	4
-44E	4	LD153-0010-0008	.	WASHER (AP)	.	.	.	.	.	4	4
		RD172-0018-0450	.	TAPE (450 PSI)	.	.	.	.	.	AR	AR
		RD172-0014-0018	.	TAPE (HELIUM)	.	.	.	.	.	AR	AR
-45	4	554793-7	.	RING, Pneumatic flange retaining	.	.	.	.	.	1	1
-46	4	408776	.	SEAL, Pressure-actuated, cryogenic	.	.	.	.	.	1	1
-46	4	410899	(a)	SEAL, Pressure-actuated, cryogenic	.	.	.	.	.	1	1
-47	4	557406	.	BRACKET, Pneumatic flange, support	.	.	.	.	.	1	1
		RD111-1010-3412	.	BOLT (AP)	.	.	.	.	.	2	2
		LD153-0013-0002	.	WASHER (AP)	.	.	.	.	.	4	4
		RD114-8005-2004	.	NUT (AP)	.	.	.	.	.	2	2
-48	7	RD273-1020-1002	.	PLUG AND BLEEDER	.	.	.	.	.	1	1
-49	7	RD261-6001-0001	.	GASKET	.	.	.	.	.	1	1
-50	7	RD265-3009-0002	.	PLUG	.	.	.	.	.	1	1
-51	7	404659	.	SEAL, Pressure-actuated	.	.	.	.	.	1	1
-51	7	408767	(a)	SEAL, Pressure-actuated, cryogenic	.	.	.	.	.	1	1
-52	3	558126	.	VALVE ASSY, Purge control, pressure-actuated, normally closed (May replace 557823 for spares) (See figure 11 for breakdown)	.	.	.	.	.	1	1
-53	8	RD273-1020-1002	.	PLUG AND BLEEDER	.	.	.	.	.	1	1
-54	8	RD261-6001-0001	.	GASKET	.	.	.	.	.	1	1
-55	6, 8	557437	.	TUBE ASSY, Bleed, discharge valve, start tank (Welded)	.	.	.	.	.	1	1
-55A	6	RD111-1010-3422	.	BOLT (AP)	.	.	.	.	.	4	4
-55B	8	RD111-1009-3418	.	BOLT (AP)	.	.	.	.	.	4	4
		LD153-0013-0002	.	WASHER (AP)	.	.	.	.	.	3	3
		RD114-8005-2004	.	NUT (AP)	.	.	.	.	.	4	4
		RD172-0018-0450	.	TAPE (450 PSI)	.	.	.	.	.	AR	AR
		RD172-0012-0001	.	TAPE (PNEUMATIC)	.	.	.	.	.	AR	AR
		RD172-0014-0018	.	TAPE (HELIUM)	.	.	.	.	.	AR	AR
-56	8	404666-7	.	SEAL, Pressure-actuated, spacer type, square flange	.	.	.	.	.	1	1
-56	8	459724	(a)	SEAL, Pressure-actuated, cryogenic	.	.	.	.	.	1	1
-57	8	556141	.	LINE ASSY, Spin valve control (Welded) (Engines not incorporating MD236 change)	.	.	.	.	.	1	1
-57	8	556141-11	.	LINE ASSY, Spin valve control (Welded) (Engines incorporating MD236 change)	.	.	.	.	.	1	1
		RD111-1009-3332	.	BOLT (AP)	.	.	.	.	.	10	10
		LD153-0013-0002	.	WASHER (AP)	.	.	.	.	.	7	7
		RD172-0018-0450	.	TAPE (450 PSI)	.	.	.	.	.	AR	AR
		RD172-0012-0001	.	TAPE (PNEUMATIC)	.	.	.	.	.	AR	AR
		RD172-0014-0018	.	TAPE (HELIUM)	.	.	.	.	.	AR	AR
-58	8	553372	.	VALVE ASSY, 1/4 IN. vent port check	.	.	.	.	.	1	1
-59	8	MS28778-4	.	PACKING	.	.	.	.	.	1	1
-59A	8	AN565A1032H8	.	SET SCREW	.	.	.	.	.	2	2
-60	8	558069	.	VALVE ASSY, Control, 4-way (Start tank discharge control valve) (See figure 9 for breakdown) (J18)	.	.	.	.	.	1	1
		RD111-1009-3417	.	BOLT (AP)	.	.	.	.	.	6	6
		LD153-0013-0002	.	WASHER (AP)	.	.	.	.	.	6	6
		RD153-5001-0003	.	WASHER (AP)	.	.	.	.	.	4	4
-60A	1	RD421-5001-0016	.	INSULATOR (NHA 103850)	.	.	.	.	.	4	4
-61	8	404665	.	SEAL ASSY, Static, spacer type	.	.	.	.	.	1	1
-62	8	404657-5	.	SEAL, Pressure-actuated	.	.	.	.	.	1	1
-62	8	401212	(a)	SEAL, Pressure-actuated, cryogenic	.	.	.	.	.	1	1
-63	8	12130PL17	.	SEAL (MFD by 08199)	.	.	.	.	.	2	2
-64	8	12130PL14	.	SEAL (MFD by 08199)	.	.	.	.	.	1	1
-65	5	554780	.	TUBE ASSY, Helium tank to regulator (Welded)	.	.	.	.	.	1	1
		RD172-0018-4000	.	TAPE (4000 PSI)	.	.	.	.	.	AR	AR
		RD172-0014-0018	.	TAPE (HELIUM)	.	.	.	.	.	AR	AR
		RD172-0012-0001	.	TAPE (PNEUMATIC)	.	.	.	.	.	AR	AR
-66	2, 3, 7, 8	404631	.	PLUG, Leak tap, port	.	.	.	.	.	30	30
-67	8	557438	.	ADAPTER ASSY, Pneumatic, control solenoid to spin valve (Welded)	.	.	.	.	.	1	1
		RD111-1009-3417	.	BOLT (AP)	.	.	.	.	.	4	4
		RD153-1003-0006	.	WASHER (AP)	.	.	.	.	.	2	2
		RD172-0018-0450	.	TAPE (450 PSI)	.	.	.	.	.	AR	AR
		RD172-0012-0001	.	TAPE (PNEUMATIC)	.	.	.	.	.	AR	AR
		RD172-0014-0018	.	TAPE (HELIUM)	.	.	.	.	.	AR	AR
-68	8	557439	.	CAP, Pneumatic, spin valve	.	.	.	.	.	1	1
		RD111-1009-3414	.	BOLT (AP)	.	.	.	.	.	6	6
		LD153-0013-0002	.	WASHER (AP)	.	.	.	.	.	4	4
-69	8	404673-19	.	SEAL, Pressure-actuated, cryogenic	.	.	.	.	.	1	1
-69	8	410896	(a)	SEAL, Pressure-actuated, cryogenic	.	.	.	.	.	1	1
-70	8	404673-3	.	SEAL, Pressure-actuated, cryogenic	.	.	.	.	.	1	1
-70	8	410876	(a)	SEAL, Pressure-actuated, cryogenic	.	.	.	.	.	1	1
-71	2, 3	557890	.	TUBE ASSY, Gas generator, valve equalization (Gas generator pressure equalization line)	.	.	.	.	.	1	1
		558037-3	.	TUBE, 321 CRES, 1/4 IN. OD by 0.028 gage by 11.00 IN. LG (Field configuration for 557890 incorporating MD164 and MD165 changes)	.	.	.	.	.	NP	NP
		RD172-0012-0001	.	TAPE (PNEUMATIC)	.	.	.	.	.	AR	AR

(a) For interchangeability status, refer to the Component Interchangeability List.

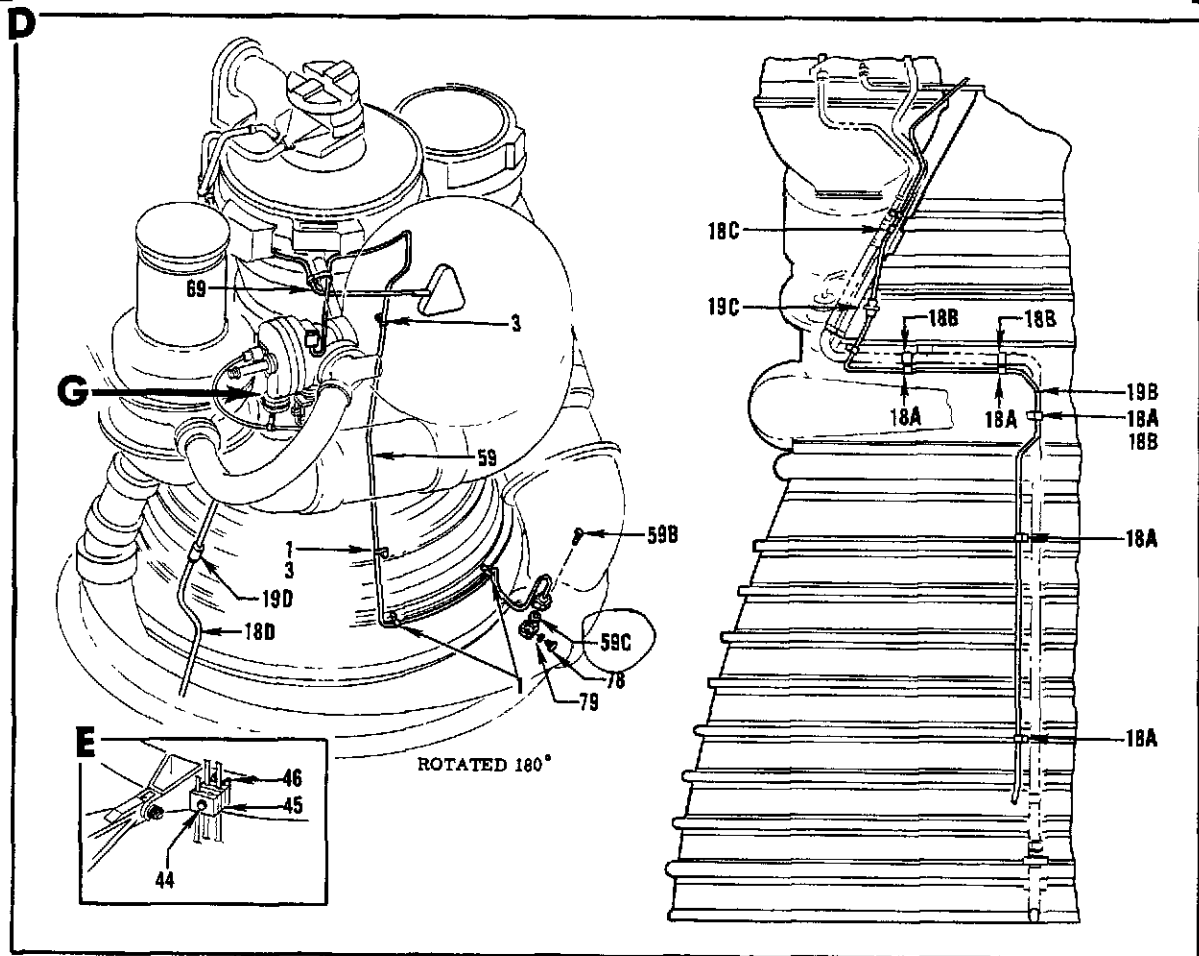
FIG. & INDEX NO.	ZONE NO.	PART NUMBER	DESCRIPTION							UNITS PER ASSY	USABLE DN CODE
			1	2	3	4	5	6	7		
3-		RD172-0014-0018	.	.	TAPE (HELIUM)					AR	AR
		RD172-0018-0450	.	.	TAPE (450 PSI)					AR	AR
		557890-3	.	.	TUBE, 321 CRES, 1/4 IN. OD by 0.028 gage by 51.00 IN. LG					1	1
-72	3	557411-3	.	.	UNION, Pneumatic system (Altered from AN815-4S)					1	1
-73	3	RE261-3004-0004	.	.	SEAL (Interchangeable with 12100CR4 MFD by 08199)					1	1
		RD273-1023-0005	.	.	SLEEVE (RD273-1029-0002 sleeve may be installed)					1	1
-74	4	554793-3	.	.	RING, Pneumatic flange retaining					1	1
-75	7	RD273-1020-1002	.	.	PLUG AND BLEEDER					1	1
-76	7	RD261-6001-0001	.	.	GASKET					1	1
-77	7	404673-13	.	.	SEAL, Pressure-actuated, cryogenic					1	1
-78	2	557411-7	.	.	UNION, Pneumatic system (Altered from AN815-4S)					1	1
-79	2	RE261-3004-0002	.	.	SEAL (Interchangeable with 12100CR2 MFD by 08199)					1	1
-80	3	404673-3	.	.	SEAL, Pressure-actuated, cryogenic					1	1
-80	3	401220 (a)	.	.	SEAL, Pressure-actuated, cryogenic					1	1
-81	2	404666	.	.	SEAL, Pressure-actuated, spacer type, square flange					1	1
-81	2	459724 (a)	.	.	SEAL, Pressure-actuated, cryogenic					1	1
(a) For interchangeability status, refer to the Component Interchangeability List.											



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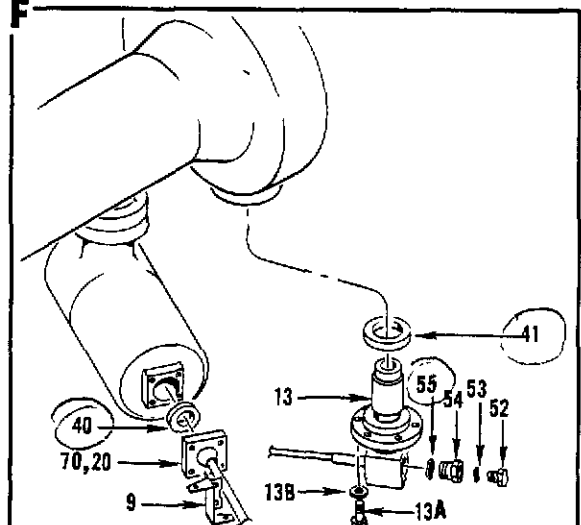
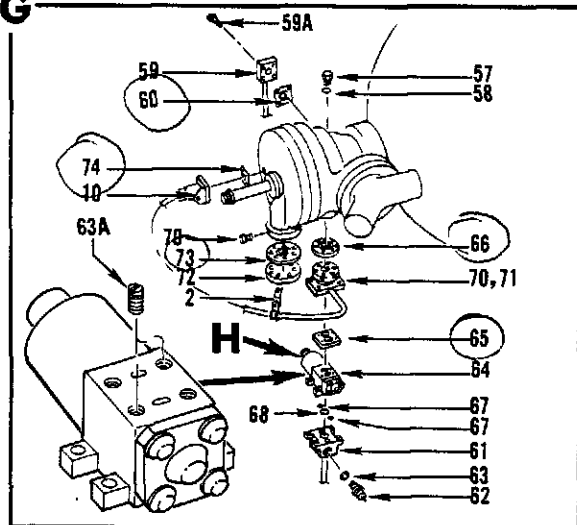
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J2-4-BG

Figure 4. Pneumatic Control System Installation (Sheet 2 of 3)

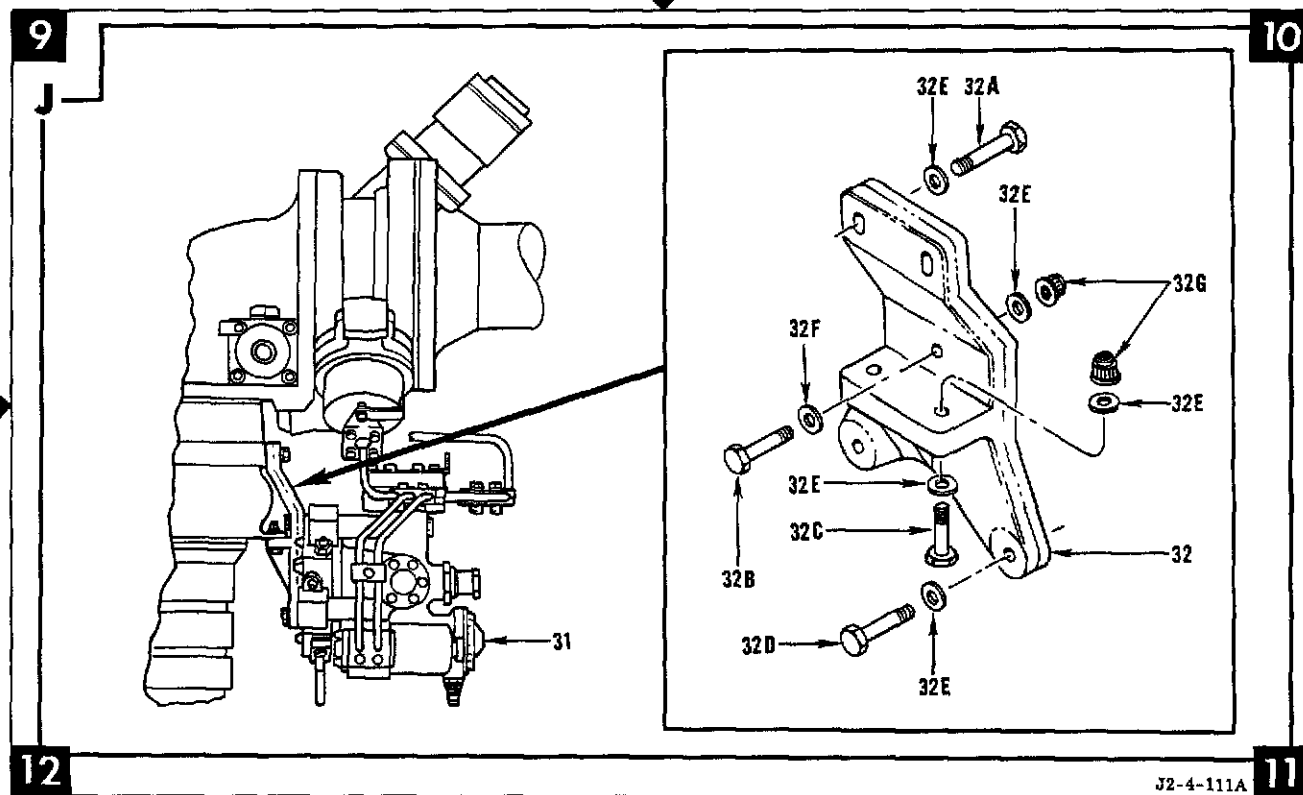


Figure 4. Pneumatic Control System Installation (Sheet 3 of 3)

FIG. & INDEX NO	ZONE NO	PART NUMBER	DESCRIPTION							UNITS PER ASSY	USABLE ON CODE	
			1	2	3	4	5	6	7			
4-		556101	CONTROL SYSTEM INSTALLATION							REF		
		PNEUMATIC CONTROL SYSTEM INSTL (Engines J-2039-1, J-2062 and J-2075 THRU J-2152) (See Figure 1, index 2)										
		RD127-1001-0002	.	CLAMP	.	.	.	.	.			34
		RD127-1001-0003	.	CLAMP	.	.	.	.	.			4
		RD127-1001-0004	.	CLAMP	.	.	.	.	.			14
		RD127-1001-0005	.	CLAMP	.	.	.	.	.			2
		NAS1101C3-16	.	SCREW (AP)	.	.	.	.	.			1
		LD153-0013-0001	.	WASHER (AP)	.	.	.	.	.			1
		RD153-1002-0003	.	WASHER (AP)	.	.	.	.	.			2
		NAS679C3W	.	NUT (AP)	.	.	.	.	.			1
		RD127-1001-0002	.	CLAMP	.	.	.	.	.			2
		RD127-1001-0004	.	CLAMP	.	.	.	.	.			6
		AN520C10R16	.	SCREW (AP)	.	.	.	.	.			1
		AN520C10R32	.	SCREW (AP)	.	.	.	.	.			1
		NAS43DD1-40	.	SPACER (AP)	.	.	.	.	.			1
		LD153-0010-0008	.	WASHER (AP)	.	.	.	.	.			1
		NAS679C3W	.	NUT (AP)	.	.	.	.	.			1
		RE127-2001-0002	.	CLAMP	.	.	.	.	.			14
		RE127-2001-0004	.	CLAMP	.	.	.	.	.			3
		RE127-2001-0006	.	CLAMP	.	.	.	.	.			5
		RE127-2001-0008	.	CLAMP	.	.	.	.	.			1
		RE127-2001-0009	.	CLAMP	.	.	.	.	.			1
		RE127-2001-0014	.	CLAMP	.	.	.	.	.			1
		RE127-2005-0004	.	CLAMP	.	.	.	.	.			10
		RE127-2005-0006	.	CLAMP	.	.	.	.	.			1
		RE127-2005-0008	.	CLAMP	.	.	.	.	.			3
		RE127-2005-0010	.	CLAMP	.	.	.	.	.			1
		RE127-2005-0012	.	CLAMP	.	.	.	.	.			2
		RE127-2005-0013	.	CLAMP	.	.	.	.	.			1
		RE127-2005-0014	.	CLAMP	.	.	.	.	.			10
		RE127-2005-0026	.	CLAMP	.	.	.	.	.			1

FIG & INDEX NO.	ZONE NO	PART NUMBER	DESCRIPTION	UNITS PER ASSY.	USABLE ON CODE
			1 2 3 4 5 6 7		
4-		NAS1101C3-8	SCREW (AP)	1	
		NAS1101C3-10	SCREW (AP)	1	
		NAS1101C3-16	SCREW (AP)	1	
		NAS1101C3-20	SCREW (AP)	1	
		RD153-1002-0001	WASHER (AP)	1	
		NAS679C3W	NUT (AP)	1	
		NAS43DD3-21	SPACER	1	
		NAS43DD1-40	SPACER	10	
		NAS43DD3-48	SPACER	1	
		NAS43DD5-6	SPACER	1	
		RD191-4002-1004	LUG	1	
		RD191-4002-1005	LUG	2	
		MS9101-55	BRACKET	1	
- 1	5	502833-3	BRACKET, Harness support	3	
- 2	8	502833-9	BRACKET, Harness support	1	
- 2A	3	502833-9	BRACKET, Harness support	1	FXA
- 3	1, 5	502833-13	BRACKET, Harness support	2	
- 3A	4	502833-13	BRACKET, Harness support	1	
- 4	4	502833-19	BRACKET, Harness support	4	
- 5	4	557885	CLAMP, Line support	2	
- 6	3	557877	CLAMP, Line block	2	
		NAS1101C3-16	SCREW (AP)	2	
		LD153-0013-0001	WASHER (AP)	4	
		NAS43DD1-40	SPACER (AP)	1	
		NAS679C3W	NUT (AP)	2	
- 7	4	410116	BRACKET, Line support	1	
- 7A		503125	BRACKET, Valve support	1	QYB/QZB
- 8	4	502850	BRACKET, Harness support, main fuel valve	1	
- 9	7	502854	BRACKET, Harness support, LOX bleed valve	1	
-10	2, 8	502835	BRACKET, Harness support, LOX and fuel bleed valves	2	
-11	2	555986	BRACKET, Tube support	1	
-12	3	557884-11	MANIFOLD ASSY, Mainstage control (Welded)	1	JVC
-12	3	558109-21	MANIFOLD ASSY, Mainstage control (Welded)	1	HXB/JVB
		RD111-1009-3416	BOLT (AP)	4	
		LD153-0013-0002	WASHER (AP)	4	
		RD172-0012-0001	TAPE (PNEUMATIC)	AR	
		RD172-0014-0018	TAPE (HELIUM)	AR	
		RD172-0018-0450	TAPE (450 PSI)	AR	
-12A	1	404673-3	SEAL, Pressure-actuated, cryogenic	1	
-12A	1	410876 (a)	SEAL, Pressure-actuated, cryogenic	1	
		RD111-1009-3416	BOLT (AP)	4	
		LD153-0013-0002	WASHER, Countersunk (AP)	4	
-12B	1	404673-3	SEAL, Pressure-actuated, cryogenic	1	
-12B	1	410876 (a)	SEAL, Pressure-actuated, cryogenic	1	
		RD111-1009-3417	BOLT (AP)	4	
		LD153-0013-0002	WASHER, Countersunk (AP)	4	
-13	4, 7	557918	MANIFOLD ASSY, Purge, oxidizer dome and gas generator oxidizer cavity (Welded) (Engines J-2046, J-2056, J-2062 THRU J-2139 not incorporating MD383 change or MD384 change) (See figure 13 for breakdown)	1	GDJ/HXB
-13	4, 7	557918-11	MANIFOLD ASSY, Purge, oxidizer dome and gas generator oxidizer cavity (Welded) (Engines J-2140 THRU J-2152 not incorporating MD383 change) (See figure 13 for breakdown)	1	MMA
-13	4, 7	557918-31	MANIFOLD ASSY, Purge, oxidizer dome and gas generator oxidizer cavity (Welded) (Engines incorporating MD383 change or MD384 change) (See figure 13 for breakdown)	1	
-13A	7	RD111-1009-3417	BOLT (AP)	6	
-13B	7	LD153-0013-0002	WASHER (AP)	6	
-14	1, 3	NA5-260045	HOSE ASSY, Helium accumulator (Pneumatic accumulator hose) (Welded)	1	
-14A	3	RD111-1009-3418	BOLT (AP)	4	
-14B	3	RD111-1009-3426	BOLT (AP)	4	
		LD153-0013-0002	WASHER (AP)	8	
		RD172-0018-0450	TAPE (450 PSI)	AR	
		RD172-0012-0001	TAPE (PNEUMATIC)	AR	
		RD172-0014-0018	TAPE (HELIUM)	AR	
-15	3	404658-9	SEAL, Pressure-actuated, spacer type, square	1	ABD
-15	3	410893-3 (a)	SEAL, Pressure-actuated, cryogenic	1	JYA
-16	3	404673-3	SEAL, Pressure-actuated, cryogenic	2	UN
-16	3	410876 (a)	SEAL, Pressure-actuated, cryogenic	2	JYA
-17	3	NA5-280167	FILTER ASSY, Helium regulator	1	
-18		DELETED			
-18A	6	RE127-2001-0004	CLAMP	5	
-18B	6	RE127-2001-0014	CLAMP	4	
		NAS1101C3-8	SCREW (AP)	1	
		NAS679C3W	NUT (AP)	1	
-18C	6	RD273-1023-2005	SLEEVE (RD273-1029-1001 sleeve may be installed)	1	
-18D	3, 5	557445	TUBE ASSY, Purge control valve (Purge control valve vent line) (Welded) (Engine J-2046 only)	1	

(a) For interchangeability status, refer to the Component Interchangeability List.

Section II
Control System

R-3825-4

FIG. & INDEX NO.	ZONE NO.	PART NUMBER	DESCRIPTION							UNITS PER ASSY.	USABLE ON CODE
			1	2	3	4	5	6	7		
4-19	3	558041	TUBE ASSY, Purge, control valve (Purge control valve vent line) (Welded)							1	FXC
-19A	3	558041-11	TUBE ASSY, Purge, control valve (Purge control valve vent line) (Welded)							1	NLA
-19B	3, 6	558476	TUBE ASSY, Vent, purge control valve (Purge control valve vent line) (Welded)							1	NLA
		RD172-0018-0025	TAPE (25 PSI)							AR	
		RD172-0012-0001	TAPE (PNEUMATIC)							AR	
		RD172-0014-0018	TAPE (HELIUM)							AR	
		RD273-1023-2005	SLEEVE (RD273-1029-1001 sleeve may be installed)							1	NLA
-18C	6	RD273-1030-0023	SLEEVE, Orifice (NHA 558041, 558041-11, and 558476)							1	
-19D	5	RD273-1026-0023	SLEEVE, Orifice (NHA 557445)							1	
-20	3, 7	556146	MANIFOLD ASSY, Bleed valve control (Welded)							1	JK
-20	3, 7	557902	MANIFOLD ASSY, Bleed valve control (Welded)							1	HUA
		RD172-0012-0001	TAPE (PNEUMATIC)							AR	
		RD172-0014-0018	TAPE (HELIUM)							AR	
		RD172-0018-0450	TAPE (450 PSI)							AR	
-21	2, 3	557880-31	MANIFOLD ASSY, Ignition control (Welded)							1	JVC
-21	2, 3	557915-21	MANIFOLD ASSY, Ignition control							1	HXB/JVD
-22	2, 3	557881	MANIFOLD ASSY, Gas generator control (Welded)							1	UR
-22	2, 3	558112	MANIFOLD ASSY, Gas generator control (Welded)							1	GVC/HXB
-22	2	557904	MANIFOLD ASSY, Gas generator control (Welded)							1	HUA
		RD111-1009-3417	BOLT (AP)							16	
		RD111-1009-3421	BOLT (AP)							4	
		RD111-1009-3418	BOLT (AP)							4	
		LD153-0013-0002	WASHER (AP)							18	
		LD153-0013-0002	WASHER (AP)							4	
		RD172-0018-0450	TAPE (450 PSI)							AR	
		RD172-0012-0001	TAPE (PNEUMATIC)							AR	
		RD172-0014-0018	TAPE (HELIUM)							AR	
-23	4	553364	VALVE ASSY, Relief, low temperature, 1/4 IN. vent (Alternate 553364-21)							1	
-24	4	MS28778-4	PACKING							1	
-25	2, 4	557889-11	MANIFOLD ASSY, Control, turbine by-pass valve (Welded)							1	JVC
-25	2, 4	557917-11	MANIFOLD ASSY, Control, turbine by-pass valve (Welded) (Engines incorporating MD236 change)							1	HXB/JVE
-25	2, 4	558107-11	MANIFOLD ASSY, Control, turbine by-pass valve (Welded) (Engines incorporating MD236 change)							1	JVF
		RD111-1009-3416	BOLT (AP)							4	
		RD111-1009-3424	BOLT (AP)							4	
		LD153-0013-0002	WASHER (AP)							4	
-25A	2, 4	558020	VALVE ASSY, Restrictor, 1/4 IN. flanged inlet (See figure 6 for breakdown)							1	
		RD172-0012-0001	TAPE (PNEUMATIC)							AR	
		RD172-0014-0018	TAPE (HELIUM)							AR	
		RD172-0018-0450	TAPE (450 PSI)							AR	
-26	4	404673-3	SEAL, Pressure-actuated, cryogenic (open)							2	UN
-26	4	410876	SEAL, Pressure-actuated, cryogenic (open)							2	JYA/RAB
-26A	4	404673-3	SEAL, Pressure-actuated, cryogenic							1	BGD
-26A	4	401220	SEAL, Pressure-actuated, cryogenic							1	JYA
-26B	4	404658-9	SEAL, Pressure-actuated, spacer type, square							1	ABD
-26B	4	410893-3	SEAL, Pressure-actuated, cryogenic							1	JYA
-27	4	404673-3	SEAL, Pressure-actuated, cryogenic (close)							1	BGD
-27	4	401220	SEAL, Pressure-actuated, cryogenic (close)							1	JYA/RAB
-28	3, 4	RD251-4115-XXXX	ORIFICE PLATE (Orifice size determined by calibration tests)							3	
-29	2	RD251-4115-XXXX	ORIFICE PLATE (Orifice size determined by calibration tests)							1	
-30	1	557876	MANIFOLD ASSY, Intermediate seal, purge (Oxidizer turbopump intermediate seal purge check valve vent line) (Welded) (Installed on SII or SIVB engines J-2039-1, J-2045, or J-2052, not incorporating MD366 or MD371 changes)							1	QEB
-30	1	557876-31	MANIFOLD ASSY, Intermediate seal purge (Oxidizer turbopump intermediate seal purge check valve vent line) (Welded)							1	
-30	1	557876-11	MANIFOLD ASSY, Intermediate seal purge (Oxidizer turbopump intermediate seal purge check valve vent line) (Welded) (Replaces 557876 for spares) (Installed on SII or SIVB engines J-2062 and J-2075 THRU J-2139 not incorporating MD366 or MD371 changes)							1	QEC
-30	1	557876-21	MANIFOLD ASSY, Intermediate seal purge (Oxidizer turbopump intermediate seal purge check valve vent line) (Welded)							1	
-30A	1	557751	VALVE ASSY, Check, 1/4 IN. (Oxidizer turbopump intermediate seal purge check valve) (NHA 557876 or 557876-31)							1	
-30A	1	557751-11	VALVE ASSY, Check, 1/4 IN. (Oxidizer turbopump intermediate seal purge check valve) (NHA 557876-11 or 557876-21)							1	
		RD172-0012-0001	TAPE (PNEUMATIC)							AR	
		RD172-0014-0018	TAPE (HELIUM)							AR	
		RD172-0018-0400	TAPE (400 PSI)							AR	
-30B	3	IT2048	COVER (MFD by 26831)							1	LHA
-31	3, 12	558130-511 (a)	REGULATOR ASSY, Helium (Pneumatic control package) (May replace 558947 basic and all dash numbers, 558100 basic and all dash numbers, and 558130 basic and all dash numbers for spares) (See figure 8 for breakdown)							1	QFC

(a) For interchangeability status, refer to the Component Interchangeability List.

FIG. & INDEX NO.	ZONE NO.	PART NUMBER	DESCRIPTION							UNITS PER ASSY.	USABLE ON CODE
			1	2	3	4	5	6	7		
4-31	3, 12	558130-531	(a)	REGULATOR ASSY, Helium (Pneumatic control package) (May replace 556947 . . basic and all dash numbers, 558100 basic and all dash numbers, and 558130 basic and all dash numbers for spares) (See figure 8 for breakdown)						1	QMB
-32	3, 11	557892	(a)	BRACKET, Support, pneumatic package						1	
-32A	10	RD111-1009-3415		BOLT (AP)						2	
-32B	11	RD111-1010-3434		BOLT (AP)						1	
-32C	11	RD111-1010-3419		BOLT (AP)						2	
-32D	11	RD111-1009-3416		BOLT (AP)						2	
-32E	10, 11	LD153-0013-0002		WASHER (AP)						9	
-32F	10	LD153-0010-0010		WASHER (AP)						1	
-32G	10	RD114-8005-2004		NUT (AP)						3	
-33	3	554798		COVER ASSY, Helium inlet, pneumatic package (Welded)						1	
-34	3	RD111-4008-6414		BOLT (AP)						8	
-35	3	RD153-5002-0004		WASHER (AP)						8	
-36	3	404657-3		SEAL, Pressure-actuated						1	UN
-36	3	459761-3	(a)	SEAL, Pressure-actuated, cryogenic						1	JYA
		RD273-1020-1002		PLUG AND BLEEDER						2	
		RD261-6001-0001		GASKET						2	
-37	2	558102-3		ADAPTER, Manifold						1	
		RD111-1009-3424		BOLT (AP)						4	
		LD153-0013-0002		WASHER (AP)						4	
-38	2	RD251-4115-0000		ORIFICE PLATE (Orifice size determined by calibration tests)						1	
-39	2	404673-3		SEAL, Pressure-actuated, cryogenic						1	GVB
-39	2	410876	(a)	SEAL, Pressure-actuated, cryogenic						1	JYA
-39A	2	404673-3		SEAL, Pressure-actuated, cryogenic						1	GVB
-39A	2	401220	(a)	SEAL, Pressure-actuated, cryogenic						1	JYA
-40	2, 7	404673-3		SEAL, Pressure-actuated, cryogenic						3	UN
-40	2, 7	401220	(a)	SEAL, Pressure-actuated, cryogenic						3	JYA
-40A	3	410876	(a)	SEAL, Pressure-actuated, cryogenic (Alternate 404673-3)						3	
-40B	3	459724	(a)	SEAL, Pressure-actuated, cryogenic (Alternate 404666-7)						1	
-40C	3	459724	(a)	SEAL, Pressure-actuated, cryogenic (Alternate 404666-7)						1	
-41	7	404673-7		SEAL, Pressure-actuated, cryogenic						1	UN
-41	7	401205	(a)	SEAL, Pressure-actuated, cryogenic						1	JYA
-42	3	554793-3		RING, Pneumatic flange retaining						1	
-43	3	404665		SEAL ASSY, Static, spacer type						2	
		RD111-1009-3310		BOLT (AP)						4	
		LD153-0013-0001		WASHER (AP)						4	
-43A	3	404673-3		SEAL, Pressure-actuated, cryogenic						1	UN
-43A	3	401220	(a)	SEAL, Pressure-actuated, cryogenic						1	JYA
-44	8	106455		BOLT, Clamping block						1	
-45	8	703564		BLOCK, Clamping half						4	
-46	8	555979		SPACER, Tube clamp						1	
-47	2	404666		SEAL, Pressure-actuated, spacer type, square flange						1	UN
-47	2	459724	(a)	SEAL, Pressure-actuated, cryogenic						1	JYA
-47A	2	404666		SEAL, Pressure-actuated, spacer type, square flange						1	UN
-47A	2	459724	(a)	SEAL, Pressure-actuated, cryogenic						1	JYA
-48	4	557417		TUBE ASSY, LOX, Purge, gas generator (Welded)						1	UR
-48	4	557919		TUBE ASSY, LOX, Purge, gas generator (Welded)						1	GDA/HXB
-48A	4	RD111-1010-3318		BOLT (AP)						4	
-48B	4	LD153-0013-0001		WASHER (AP)						2	
-48C	4	LD153-0010-0008		WASHER (AP)						4	
-48D	4	RD114-8005-2003		NUT (AP)						4	
-48E	4	RD191-4002-1005		LUG (AP)						1	
-49	4	554793-13		RING, Pneumatic flange retaining						1	
-50	4	408778		SEAL, Pressure-actuated						1	UN
-50	4	410899	(a)	SEAL, Pressure-actuated, cryogenic						1	JYA
-51	4	557920		BRACKET, Support, GO5 purge line						1	
-52	4	RD273-1020-1002		PLUG AND BLEEDER						2	
-53	4	RD261-6001-0001		GASKET						2	
-54	7	RD265-3009-0002		PLUG						1	
-55	7	404659		SEAL, Pressure-actuated						1	UN
-55	7	408767	(a)	SEAL, Pressure-actuated, cryogenic						1	JYA
-56	3	558126	(a)	VALVE ASSY, Purge control, pressure-actuated, normally closed (May replace 557823 for spares) (See figure 11 for breakdown)						1	
-56	3	558126-21		VALVE ASSY, Purge control, pressure-actuated, normally closed (See figure 11 for breakdown)						1	QYB/QZB
-57	8	RD273-1020-1002		PLUG AND BLEEDER						1	
-58	8	RD261-6001-0001		GASKET						1	
-59	6, 8	557437		TUBE ASSY, Bleed, discharge valve, start tank (Welded)						1	UP
-59	6, 8	557437-11		TUBE ASSY, Bleed, discharge valve, start tank (Welded)						1	JTA
-59A	8	RD111-1009-3418		BOLT (AP)						4	
-59B	8	RD111-1010-3422		BOLT (AP)						4	
		LD153-0013-0002		WASHER (AP)						8	
		RD114-8005-2004		NUT (AP)						4	
		RD172-0018-0450		TAPE (450 PSI)						AR	
		RD172-0012-0001		TAPE (PNEUMATIC)						AR	
		RD172-0014-0018		TAPE (HELIUM)						AR	

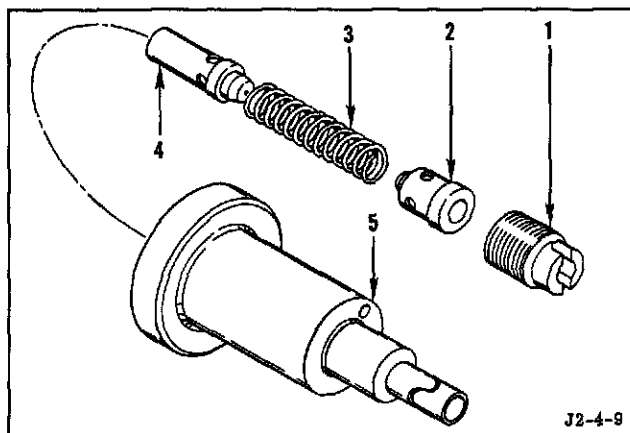
(a) For interchangeability status, refer to the Component Interchangeability List.

Section II
Control System

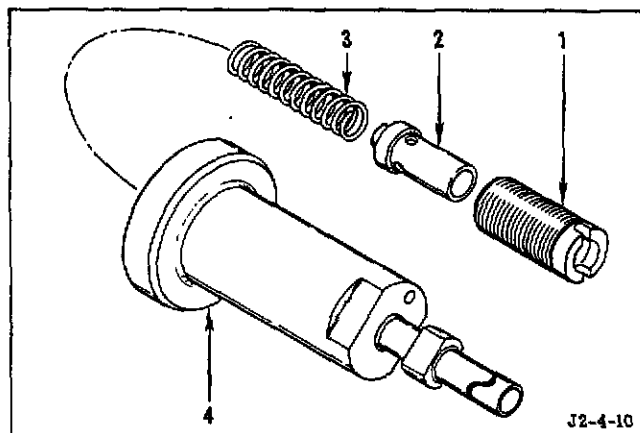
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FIG. & INDEX NO.	ZONE NO.	PART NUMBER	DESCRIPTION							UNITS PER ASSY.	USABLE ON CODE
			1	2	3	4	5	6	7		
-59	5	404673-13	SEAL, Pressure-actuated, cryogenic							1	JTA
-60	8	404666-7	SEAL, Pressure-actuated, spacer type, square flange							1	GDG
-60	8	459724	SEAL, Pressure-actuated, cryogenic							1	JYA
-61	8	556141-11	LINE ASSY, Spin valve control (Welded)							1	JVA
		RD111-1009-3332	BOLT (AP)							10	
		LD153-0013-0002	WASHER (AP)							7	
		RD172-0018-0450	TAPE (450 PSI)							AR	
		RD172-0012-0001	TAPE (PNEUMATIC)							AR	
		RD172-0014-0018	TAPE (HELIUM)							AR	
-62	8	553372	VALVE ASSY, 1/4 IN. vent port check							1	LZD
-62	8	553372-11	VALVE ASSY, 1/4 IN. vent port check							1	LZA
-63	8	MS28778-4	PACKING							1	
-63A	8	AN565A1032H3	SETSCREW							2	
-64	8	558069	VALVE ASSY, Control, 4-way (Start tank discharge control valve)							1	
			(See figure 8 for breakdown) (J18)								
		RD111-1009-3417	BOLT (AP)							6	
		LD153-0013-0002	WASHER (AP)							6	
		LD153-0013-0001	WASHER (AP)							4	
-64A	1	RD421-5001-0016	INSULATOR (NHA 103850)							4	
-65	8	404665	SEAL ASSY, Static, spacer type							1	
-66	8	404657-5	SEAL, Pressure-actuated							1	UN
-66	8	401212	SEAL, Pressure-actuated, cryogenic							1	JYA
-67	8	12130PL17	SEAL (MFD by 08199)							2	
-68	8	12130PL14	SEAL (MFD by 08199)							1	
-69	5	554780	TUBE ASSY, Helium tank to regulator (Welded)							1	
		RD172-0018-3500	TAPE (3500 PSI)							AR	
-70	2,3,4,7,8	RD172-0014-0016	TAPE (HELIUM)							AR	
-71	8	RD172-0012-0001	TAPE (PNEUMATIC)							AR	
		404631	PLUG, Port, leak tap							30	
		557438	ADAPTER ASSY, Pneumatic, control solenoid to spin valve (Welded)							1	
		RD111-1009-3417	BOLT (AP)							4	
-71A	8	RD153-1003-0006	WASHER (AP)							2	
		556428	VALVE ASSY, Restrictor, 1/4 IN. flanged outlet (NHA 557438)							1	
			(See figure 5 for breakdown)								
		RD172-0018-0450	TAPE (450 PSI)							AR	
		RD172-0012-0001	TAPE (PNEUMATIC)							AR	
-72	8	RD172-0014-0018	TAPE (HELIUM)							AR	
		557439	CAP, Pneumatic, spin valve							1	
		RD111-1009-3414	BOLT (AP)							6	
		LD153-0013-0002	WASHER (AP)							4	
-73	8	404673-19	SEAL, Pressure-actuated, cryogenic							1	UN
-73	8	410896	SEAL, Pressure-actuated, cryogenic							1	JYA
-74	8	404673-3	SEAL, Pressure-actuated, cryogenic							1	UN
-74	8	410876	SEAL, Pressure-actuated, cryogenic							1	JYA
-75	2	557890	TUBE ASSY, Gas generator, valve equalization (Gas generator pressure equalization line)							1	JU
-75	2	558037	TUBE ASSY, Gas generator, valve equalization (Gas generator pressure equalization line)							1	GDE/HXB
-75	2	558116	TUBE ASSY, Gas generator, valve equalization (Gas generator pressure equalization line)							1	HLA
		RD172-0012-0001	TAPE (PNEUMATIC)							AR	
		RD172-0014-0018	TAPE (HELIUM)							AR	
		RD172-0018-0450	TAPE (450 PSI)							AR	
		557890-3	TUBE, 321 CRES, 1/4 IN. OD by 0.028 gage by 51.00 IN. LG							1	
		558037-7	TUBE, 321 CRES, 1/4 IN. OD by 0.028 gage by 51.00 IN. LG							1	
		558116-3	TUBE, 321 CRES, 1/4 IN. OD by 0.028 gage by 40.00 IN. LG							1	
-76	2	557411-3	UNION, Pneumatic system (Altered from AN815-4S)							1	JS
-76	2	558122-5	ADAPTER, Threaded boss to sleeve							1	HLA
-77	2	RE261-3004-0004	SEAL (Interchangeable with 12100CR4 MFD by 08199)							1	
-77A	2	RD273-1023-0005	SLEEVE (RD273-1023-0002 sleeve may be installed)							1	JS
-78	5	RD273-1020-1002	PLUG AND BLEEDER							1	VBH
-79	5	RD261-6001-0001	GASKET							1	VBH
-80	2	557411-7	UNION, Pneumatic system (Altered from AN815-4S)							1	JS
-80	2	558122-3	ADAPTER, Threaded boss to sleeve							1	HLA
-81	2	RE261-3004-0002	SEAL (Interchangeable with 12100CR2 MFD by 08199)							1	

(a) For interchangeability status, refer to the Component Interchangeability List.

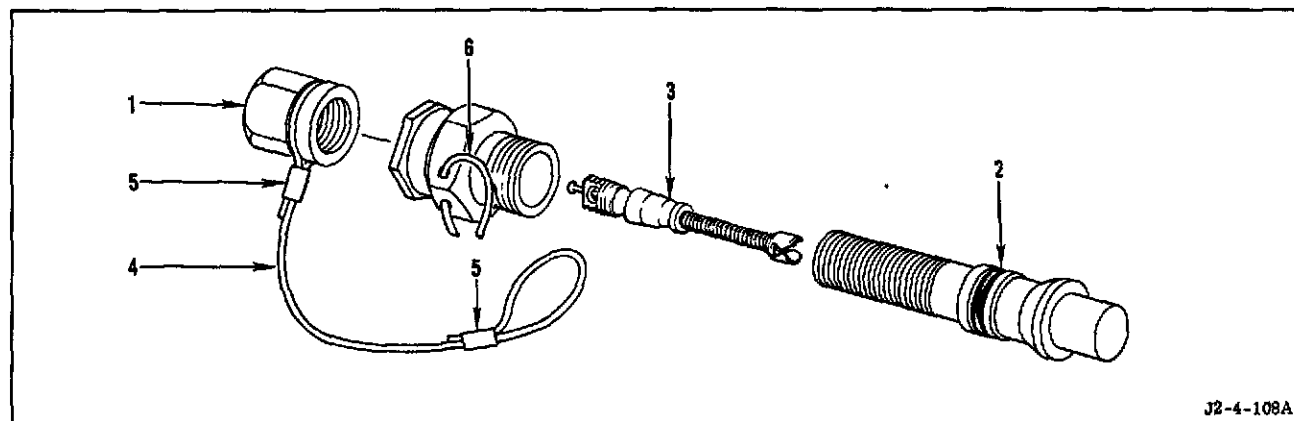


J2-4-9



J2-4-10

Figure 5. 1/4-Inch Flanged Restrictor Outlet Valve Assembly Figure 6. 1/4-Inch Flanged Restrictor Inlet Valve Assembly



J2-4-108A

Figure 7. Air Filler Valve Assembly (Pressurizing Valve)

FIG. & INDEX NO.	ZONE NO.	PART NUMBER	DESCRIPTION	UNITS PER ASSY.	USABLE ON CODE
5-		558426	VALVE ASSY, Restrictor, 1/4 IN. flanged outlet (See figure 4, index 71A, for REQMT)	REF	
- 1		558433	. PLUG, Orifice, restrictor valve, 1/4 IN.	1	
- 2		558432	. GUIDE, Restrictor valve, 1/4 IN.	1	
- 3		558444	. SPRING, Compression, restrictor valve, 1/4 IN.	1	
- 4		558443	. POPPET, Restrictor valve, 1/4 IN.	1	
- 5		558441	. BODY, Restrictor valve, 1/4 IN.	1	
6-		558020	VALVE ASSY, Restrictor, 1/4 IN. flanged inlet (See figure 4, index 25A, ... for REQMT)	REF	
- 1		558431	. GUIDE, Orifice, restrictor, valve, 1/4 IN.	1	
- 2		558443	. POPPET, Restrictor valve, 1/4 IN.	1	
- 3		558444	. SPRING, Compression restrictor valve, 1/4 IN.	1	
- 4		558019	. BODY ASSY, Restrictor valve (Welded)	1	
7-		558272-41	VALVE ASSY, Air filler (Pressurizing valve) (Altered from RD284-1001-0001) (See figure 2, index 60, figure 31, index 28, and figure 32, index 24, for REQMT)	REF	
			PARTIAL BREAKDOWN FOLLOWS		
- 1		RD265-0001-0002	. CAP ASSY	1	
- 2		AN6227-5	. PACKING	1	
- 3		558272-3	. CORE (MFD by 53477)	1	
- 4		RD191-2001-2004	. WIRE ROPE	1	
- 5		27-1B	. SLEEVE (MFD by 76691)	2	
- 6		MS20995N32-18	. LOCKWIRE	AR	

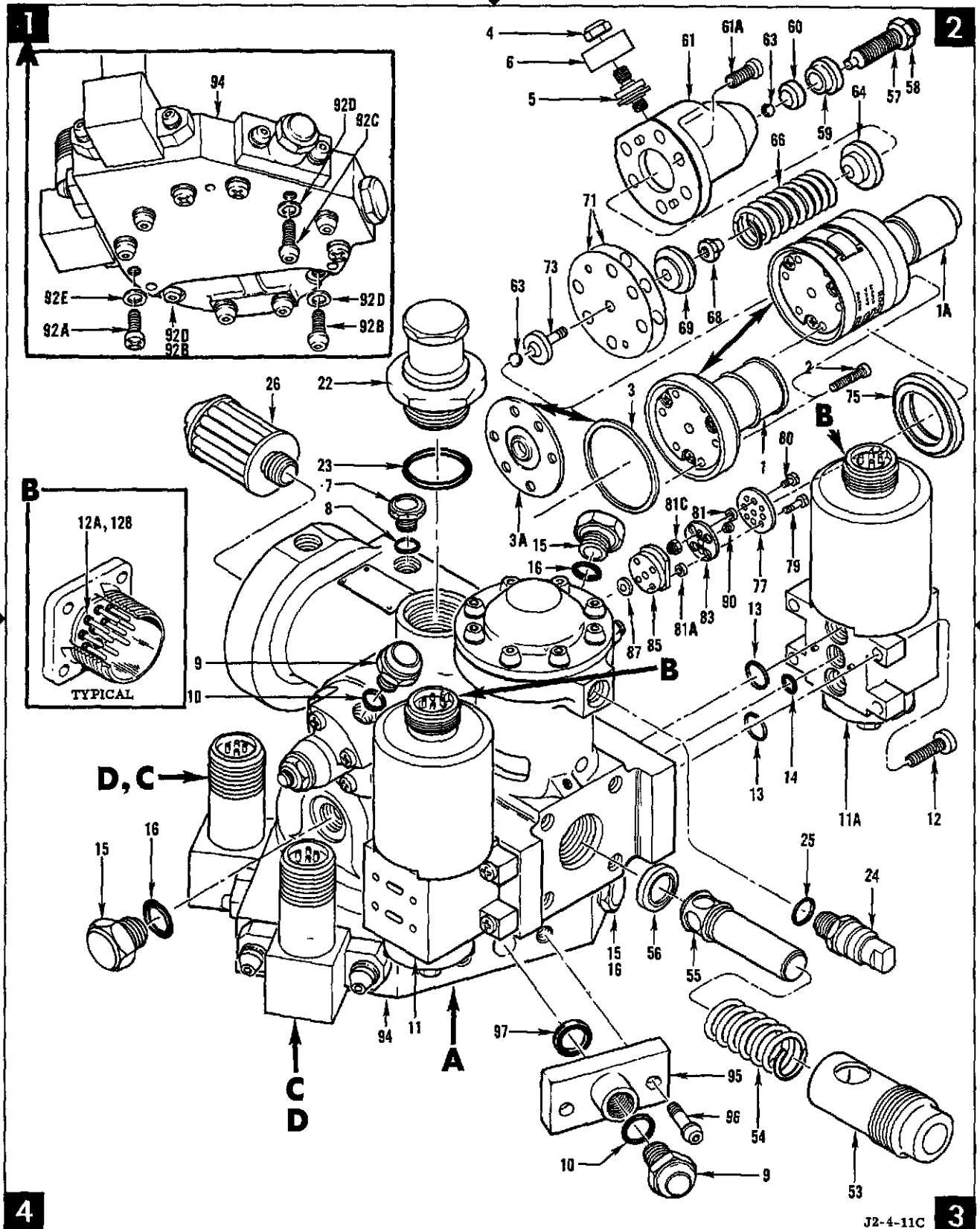


Figure 8. Helium Regulator Assembly (Pneumatic Control Package) (Sheet 1 of 3)

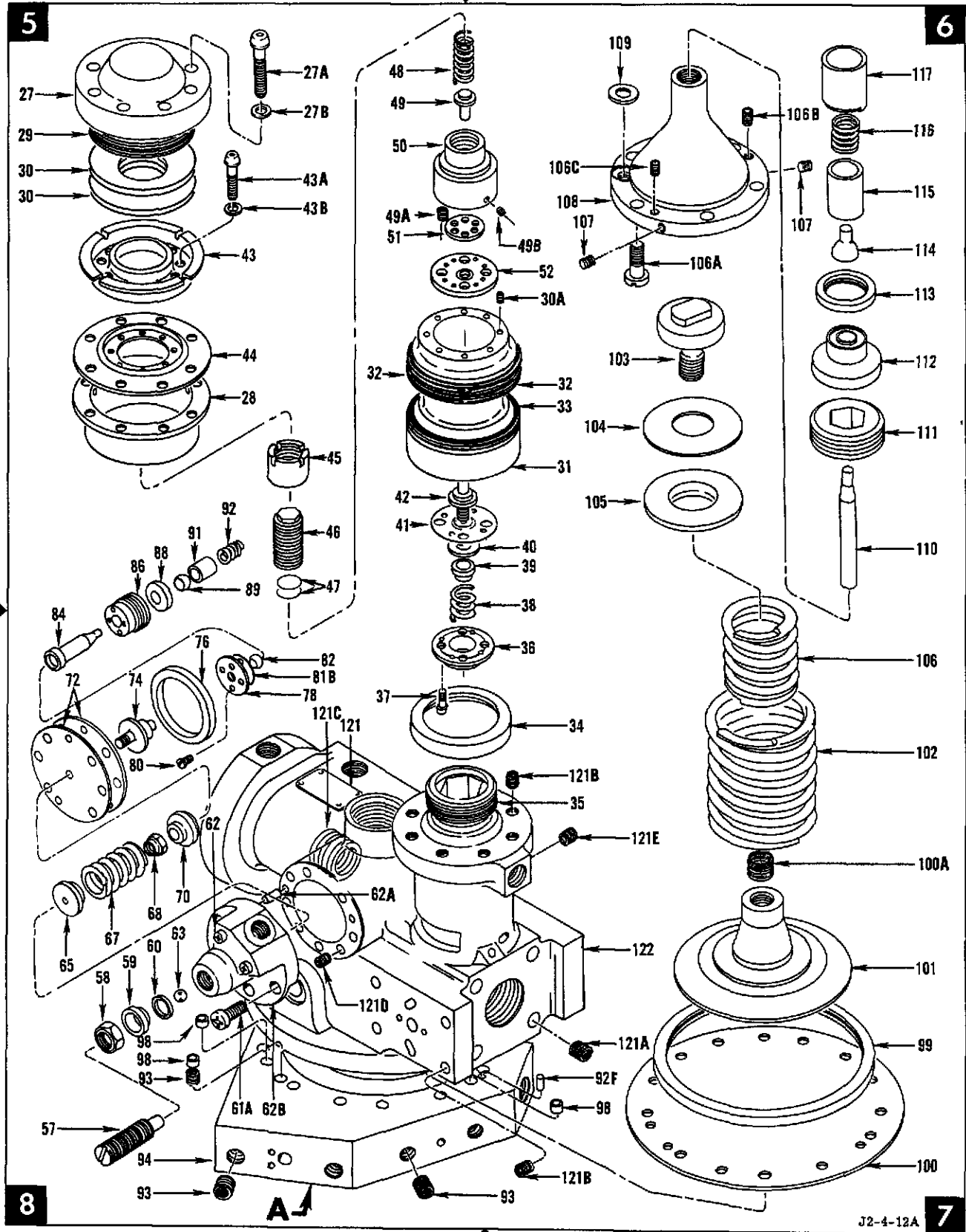


Figure 8. Helium Regulator Assembly (Pneumatic Control Package) (Sheet 2 of 3)

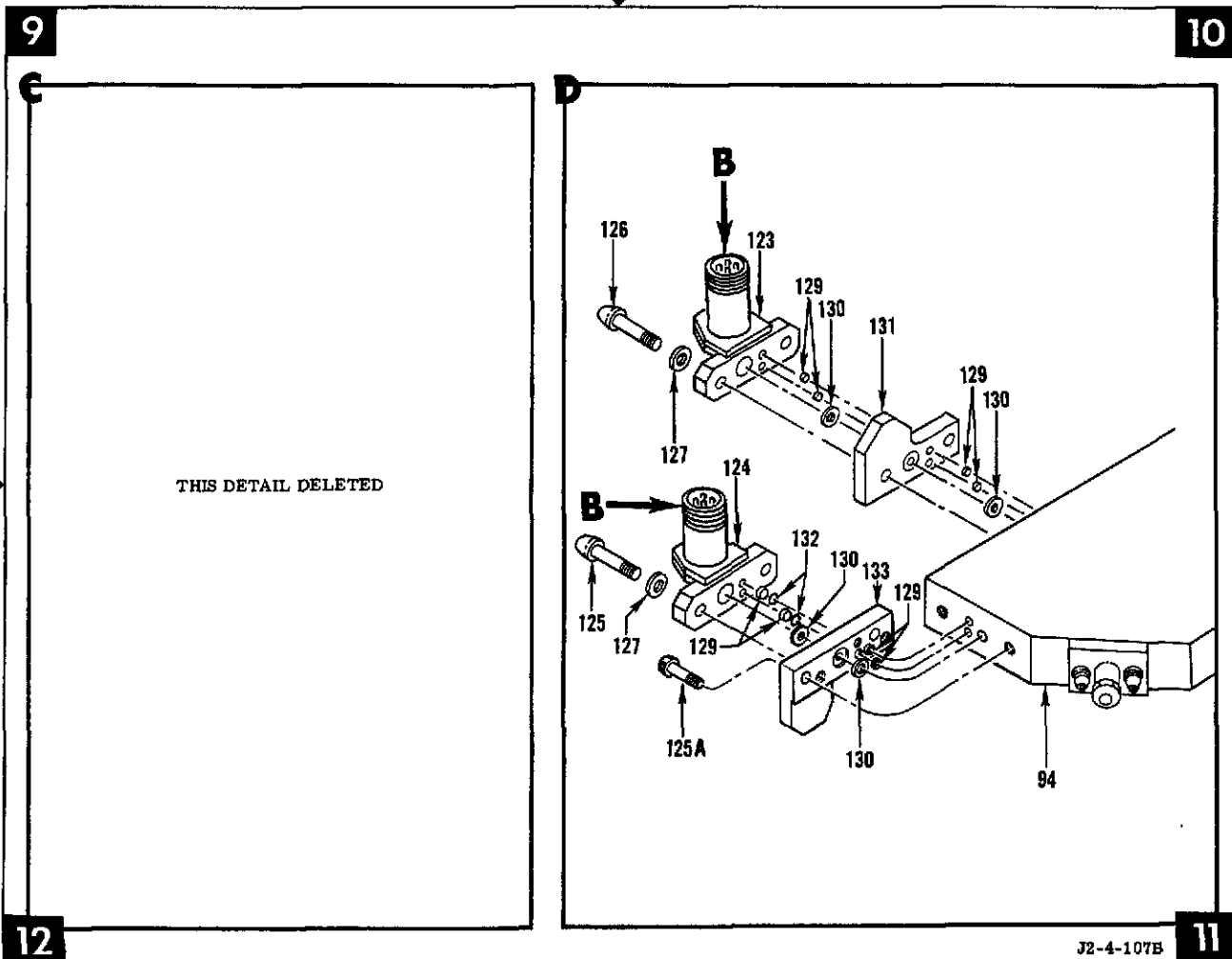


Figure 8. Helium Regulator Assembly (Pneumatic Control Package) (Sheet 3 of 3)

FIG. & INDEX NO.	ZONE NO.	PART NUMBER	DESCRIPTION							UNITS PER ASSY.	USABLE OH CODE	
			1	2	3	4	5	6	7			
8-		558130-511	(a)	REGULATOR ASSY, Helium (Pneumatic control package) (May replace basic 556948 and all dash numbers, basic 556947 and all dash numbers, basic 558100 and all dash numbers, and basic 558130 and all dash numbers) (See figure 4, index 31, for REQMT)							REF	JP JYA
		558130-531	(a)	REGULATOR ASSY, Helium (Pneumatic control package) (May replace basic 556948 and all dash numbers, basic 556947 and all dash numbers, basic 558100 and all dash numbers, and basic 558130 and all dash numbers) (See figure 4, index 31, for REQMT)							REF	
- 1	2	551255		VALVE ASSY, Relief, high-pressure, helium (See figure 10 for breakdown)							1	
- 1A	2	558325		VALVE ASSY, Relief, high-pressure (May replace 551255 for spares) (Not repairable in the field--remove and replace only)							1	
- 2	2	NAS1101C08-14		SCREW (AP)							6	
- 2	2	NAS1101C08-28		SCREW (AP)							6	
- 3	2	404655-3		SEAL, Pressure-actuated, spacer type, miniature							1	
- 3A	2	459758		SEAL, Pressure-actuated, cryogenic							1	
- 4	1	NAS879C5		NUT							1	
- 5	2	551317		FITTING, Vent port, regulator							1	
- 6	2	551853		DEFLECTOR, Liquid regulator							1	
(a) For interchangeability status, refer to the Component Interchangeability List.												

FIG. & INDEX NO.	ZONE NO.	PART NUMBER	DESCRIPTION							UNITS PER ASSY.	USABLE ON CODE
			1	2	3	4	5	6	7		
8- 7	1	AN814-2JL	.	PLUG AND BLEEDER (Supersedes AN814-2CL)						1	
- 8	1	MS28778-2	.	PACKING						1	
- 9	3,4	553364	.	VALVE ASSY, Relief, low temperature, 1/4 IN. vent (Alternate 553364-21)						2	
-10	3,4	MS28778-4	.	PACKING						2	
-11	4	558069	.	VALVE ASSY, Control, 4-way (Mainstage control valve) (May replace						1	
			.	555767 for spares) (See figure 9 for breakdown) (J15)							
-11A	3	558069	.	VALVE ASSY, Control, 4-way (Ignition-phase control valve) (May replace						1	
			.	555767 for spares) (See figure 9 for breakdown) (J14)							
-12	3	NAS1101C3-12	.	SCREW (AP)						4	
-12A	1	RD421-5001-0016	.	INSULATOR (NHA 103850)						8	
-13	2,3	12130PL17	.	SEAL (MFD by 08199)						4	
-14	3	12130PL14	.	SEAL (MFD by 08199)						2	
-15	2,3,4	701853	.	PLUG, Instrumentation, unvented						3	
-16	2,3,4	404859	.	SEAL, Pressure-actuated						3	JP
-16	2,3,4	408767	(a)	SEAL, Pressure-actuated, cryogenic						1	JYA
-17											
THRU											
-21		DELETED									
-22	1	557809-31	.	VALVE ASSY, 3/4 IN. vent port check (NHA 558130-331)						1	
-23	1	MS28778-12	.	PACKING						1	
-24	3	553372-11	.	VALVE ASSY, 1/4 IN. vent port check (Low-pressure relief valve)						1	
			.	(May replace 553372 for spares)							
-25	3	MS28778-4	.	PACKING						1	
-26	1	NA5-26700	.	FILTER ELEMENT, Helium regulator inlet						1	
-27	5	556953	.	COVER, Relief valve, low-pressure						NP	
-27A	5	RD111-3005-1014	.	BOLT (AP)						NP	
-27B	5	RD153-0113-0022	.	WASHER (AP)						NP	
-28	5	553932	.	SLEEVE, Relief valve, low-pressure						NP	
-29	5	556963	.	SHIM, Relief valve, low-pressure (May replace 556954 for spares)						NP	
-30	5	556951	.	SPRING, Belleville, relief valve, low-pressure						NP	
		556957	.	PISTON ASSY, Relief valve, low-pressure						NP	
-30A	6	3585-04CNVX224	.	INSERT (MFD by 91767)						NP	
-31	6	556957-3	.	PISTON, Relief valve, low-pressure						NP	
-32	5,6	B630412	.	RING, Piston (MFD by 99121)						NP	
-33	6	811052-25Q	.	SEAL (MFD by 97820)						NP	
-34	7	554863	.	SEAL, Low-pressure relief valve						NP	
-35	7	554851	.	PLUG, Low-pressure relief valve						NP	
-36	7	558096	.	RETAINER, Relief valve, low-pressure (May replace 554859 for spares)						NP	
-37	5	RD111-3005-0410	.	BOLT (AP)						NP	
-38	6	554871	.	SPRING, Low-pressure relief valve						NP	
-39	6	79LH1660-26	.	NUT (MFD by 72962)						NP	
-40	6	554865	.	WASHER, Low-pressure relief valve						NP	
-41	5	554867	.	DIAPHRAGM, Low-pressure relief valve						NP	
-42	5	555016	.	PIN, Low-pressure relief valve						NP	
-43	5	556956	.	RING, Relief valve, low-pressure						NP	
-43A	5	RD111-3005-0406	.	BOLT (AP)						NP	
-43B	5	RD153-0113-0009	.	WASHER (AP)						NP	
-44	5	554868	.	DIAPHRAGM ASSY, Low-pressure relief valve (Bonded)						NP	
-45	5	556955	.	NUT, Jam, relief valve, low-pressure						NP	
-46	5	558097	.	CAP, Relief valve, low-pressure (May replace 554860 for spares)						NP	
-47	5	554858	.	SHIM, Low-pressure relief valve						NP	
-48	6	558095	.	SPRING, Relief valve, low-pressure (May replace 556583 for spares)						NP	
-49	5	555013	.	PIN, Low-pressure relief valve						NP	
		556958	.	SEAT ASSY, Relief valve, low-pressure						NP	
-49A	6	3585-04CNVX224	.	INSERT (MFD by 91767)						NP	
-49B	5	093001	.	PLUG, Pin (MFD by 91767)						NP	
-50	6	556958-3	.	SEAT, Relief valve, low-pressure						NP	
-51	5	555015	.	POPPET, Low-pressure relief valve						NP	
-52	6	555017	.	INSERT, Seat, low-pressure relief valve						NP	
-52	6	558098	.	SEAT, Insert, relief valve, low-pressure						NP	
-53	3	554019	.	GUIDE, Check valve, helium control						1	
-54	3	558424	.	SPRING, Compression, check valve, pressure isolation (May replace						1	
			.	553843 for spares)							
-55	3	554018	.	POPPET, Check valve, helium control						1	
-56	3	553942	.	SEAL, Check valve, 1/2 IN. (1500 PSI)						1	
-57	2,8	554899	.	SCREW, Adjusting regulator						2	
-58	2,8	RD114-1002-0004	.	NUT						2	
-59	2,8	554926	.	WASHER, Seal retainer, regulator						2	

(a) For interchangeability status, refer to the Component Interchangeability List.

Section II
Control System

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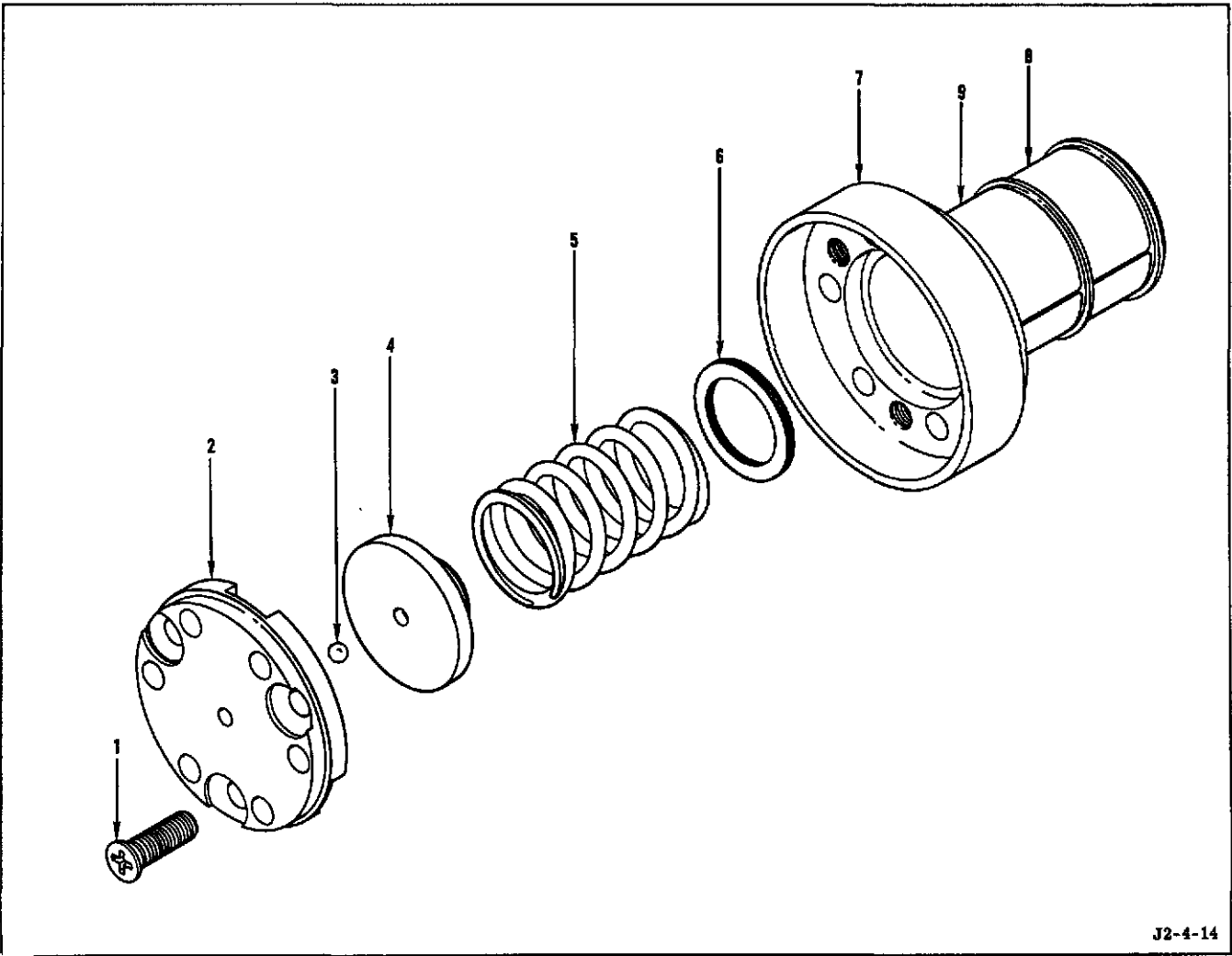
FIG. & INDEX NO.	ZONE NO.	PART NUMBER	DESCRIPTION							UNITS PER ASSY.	USABLE ON CODE
			1	2	3	4	5	6	7		
8-60	2, 8	2012	PACKING (MFD by 75165)							AR	
-61	2	554929	CAP ASSY, Controller-regulator (Machined)							1	
-61A	2	NAS1101C3-10	SCREW (AP)							13	
		554951	HOUSING ASSY, Bleed regulator (Machined)							1	
-62	8	NAS1101C3-20	SCREW (AP)							4	
-62A	8	MS171493	PIN							2	
-62B	8	554951-3	HOUSING, Bleed regulator							1	
-63	2, 8	MS134352	BALL							3	
-64	2	554928	GUIDE, Spring, controller, regulator							1	
-65	8	554953	GUIDE, Spring, upper, bleed regulator							1	
-66	2	554890	SPRING, Compression-controller, reference regulator							1	
-67	8	554952	SPRING, Compression, bleed regulator							1	
-68	2, 8	H41-08	NUT (MFD by 15635)							2	
-69	2	554898	CLAMP, Diaphragm-controller, regulator							1	
-70	8	554950	GUIDE, Spring, lower, bleed regulator							1	
-71	2	558441	DIAPHRAGM, Controller, regulator (May replace 554927 for spares)							2	
-72	8	556501	DIAPHRAGM, Bleed regulator							2	
-73	2	554897-3	STEM, Controller, regulator (May replace 554897 for spares)							1	
-74	8	554949	NOZZLE, Exhaust, bleed regulator							1	
-75	2	RD261-3010-0016	SEAL							1	
-76	8	RD261-3010-0014	SEAL							1	
-77	2	554895	GUIDE, Pilot, controller, regulator							1	
-78	8	556589	RETAINER, Exhaust seat, bleed regulator							1	
-79	2	M60CR256-8E	SCREW (MFD by 07368) (AP)							4	
-80	2, 8	NAS1190C02T4N	SCREW (AP)							4	
-81	2	554892	SPACER, Disc, controller, regulator (AP)							2	
-81A	2	554891	SPACER, Controller, regulator (AP)							4	
-81B	8	554947	SHIM, Exhaust seat, bleed regulator							1	
-81C	2	H41-02	NUT (MFD by 14653) (AP)							2	
-82	9	556590	SEAT, Poppet, regulator							1	
-83	2	554893	DISC, Flexure, controller, regulator							1	
-84	5	556591	ROD, Push, regulator							1	
-85	3	554894	SEAT, Controller, regulator							1	
-86	5	554945	RETAINER ASSY, Inlet, seat bleed regulator							1	
-87	3	12130PL8	SEAL (MFD by 08199)							1	
-88	5	551324	SEAT, Bleed regulator, BMO regulator							1	
-89	5	551655	BALL, Half, inlet valve							1	
-90	2	554896	POPPET, Controller, regulator							1	
-91	5	551357	RETAINER, Ball bleed regulator, BMO regulator							1	
-92	5	553137	SPRING, Compression							1	
		553930	DOME ASSY, Helium regulator							1	
-92A	1	NAS1101C4-24	SCREW (AP) (May replace NAS1101-4-24 for spares)							4	
-92B	1	RD111-3003-0408	BOLT (AP)							2	
-92C	1	RD111-3003-0418	BOLT (AP)							6	
-92D	1	LD153-0013-0002	WASHER (AP)							12	
-92E	1	LD153-0010-0009	WASHER (AP)							4	
-92F	7	MS171524	PIN							2	
-93	7, 8	3591-4CNVX375	INSERT (MFD by 91767)							8	
-94	1, 8, 11, 12	553930-3	DOME, Helium regulator							1	
-95	3	553935	ADAPTER, Helium regulator							1	
-96	3	RD111-3003-0404	BOLT (AP)							2	
-97	4	12130PL14	SEAL (MFD by 08199)							1	
-98	7, 8	12130PL9	SEAL (MFD by 08199)							3	
-99	7	RD261-3010-0060	SEAL							1	
-100	7	555797	DIAPHRAGM, Actuator, helium regulator							1	
		554943	ACTUATOR ASSY, Regulator							1	
-100A	7	3585-2CNVX246	INSERT (MFD by 91767)							1	
-101	7	554943-3	ACTUATOR, Regulator							1	
-102	7	554938	SPRING, Actuator-regulator							1	
-103	6	551994	SCREW, Actuator-regulator							1	
-104	6	554940	SEAL, Metal, exhaust valve, regulator							1	
-105	6	554941	POPPET, Exhaust							1	
-106	7	554942	SPRING, Exhaust valve, regulator							1	
		550154	SEAT ASSY, Exhaust, helium regulator							1	
-106A	6	NAS1101C3-10	SCREW (AP)							4	
-106B	6	550238	INSERT, Exhaust seat, helium regulator							1	
-106C	6	MS171524	PIN							2	
-107	6	156002	PLUG, Pin (MFD by 92555)							2	
-108	6	550154-3	SEAT, Exhaust, helium regulator							1	
-109	6	121100PL25	SEAL (MFD by 08199)							1	
-110	6	554936	ROD, Push-regulator							1	
-111	6	554935	RETAINER, Seat regulator							1	
-112	6	554934	SEAT, Inlet-regulator							1	
-113	6	RD261-3010-0012	SEAL							1	

FIG. & INDEX NO.	ZONE NO.	PART NUMBER	DESCRIPTION							UNITS PER ASSY.	USABLE ON CODE
			1	2	3	4	5	6	7		
8-114	6	550062	.	SEAT, Poppet, regulator	.	.	.	.	.	1	
-115	6	554932	.	POPPET, Inlet-regulator	.	.	.	.	.	1	
-116	6	554606	.	SPRING, Inlet poppet, regulator-helium	.	.	.	.	.	1	
-117	6	554931	.	GUIDE, Inlet-regulator	.	.	.	.	.	1	
-118											
THRU											
-120		DELETED									
-121	8	550176	.	NAMEPLATE, Drive screw type	.	.	.	.	.	1	
		AN535-0-2	.	SCREW (AP)	.	.	.	.	.	4	
		558089	.	BODY ASSY, Helium regulator (May replace 556959 for spares)	.	.	.	.	.	1	
-121A	7	3591-4CNVX375	.	INSERT (MFD by 91767)	.	.	.	.	.	24	
-121B	7	3591-3CNVX285	.	INSERT (MFD by 91767)	.	.	.	.	.	33	
-121C	8	3591-9CNVX562	.	INSERT (MFD by 91767)	.	.	.	.	.	1	
-121D	8	3585-2CNVX246	.	INSERT (MFD by 91767)	.	.	.	.	.	6	
-121E	7	SR086	.	INSERT (MFD by 83324)	.	.	.	.	.	4	
-122	7	558099-3	.	BODY, Helium regulator (May replace 556959-3 for spares)	.	.	.	.	.	1	
-123	10	NA5-27373T1	.	VALVE ASSY, Pneumatic, 3-way, two-position direct solenoid operated	.	.	.	.	.	1	
				(Helium tank emergency vent control valve) (Alternate NA5-27273T2)							
				(NHA 558130-501 or 558130-511) (J17)							
-124	11	NA5-27273T2	.	VALVE ASSY, Pneumatic, 3-way, two-position direct solenoid operated	.	.	.	.	.	1	QFC
				(Helium control valve) (Replaces NA5-27273T1) (NHA 558130-501							
				or 558130-511) (J13)							
-125	11	RD111-3003-0406	.	BOLT (AP)	.	.	.	.	.	2	
-125A	11	RD111-3007-0406	.	BOLT (AP)	.	.	.	.	.	2	
-126	10	RD111-3003-0414	.	BOLT (AP)	.	.	.	.	.	2	QMB
-127	10,11	LD153-0013-0002	.	WASHER (AP)	.	.	.	.	.	4	
-128	1	RD421-5001-0016	.	INSULATOR (NHA 103850)	.	.	.	.	.	8	
-129	10,11	12130PL8	.	SEAL (MFD by 08199) (NHA 558130-311)	.	.	.	.	.	8	
-130	10,11	12130PL16	.	SEAL (MFD by 08199) (NHA 558130-311)	.	.	.	.	.	4	
-131	10	NA5-28210	.	FILTER, Helium tank vent valve	.	.	.	.	.	1	
-132	11	557214	.	ORIFICE ASSY, Helium regulator	.	.	.	.	.	2	
-133	11	NA5-260337	.	FILTER, Helium control valve	.	.	.	.	.	1	QMB



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FIG. & INDEX NO.	ZONE NO.	PART NUMBER	DESCRIPTION							UNITS PER ASSY.	USABLE ON CODE
			1	2	3	4	5	6	7		
9-		558069	VALVE ASSY, Control, 4-way (Mainstage control valve, ignition-phase control valve, and start tank discharge control valve) (May replace 555787 for spares) (See figure 3, index 60, figure 4, index 64, and figure 8, index 11 and 11A, for REQMT)							REF	
- 1		RD111-1007-0323	. BOLT							4	
- 2		555807	. CAP, 4-way solenoid operated valve							1	
- 3		H19571-3	. NUT (MFD by 75237)							1	
- 4		K19572-3	. WASHER (MFD by 75237)							1	
- 5		555809	. STOP, 4-way solenoid valve							1	
		558065	. BOLT AND SOLENOID ASSY (Matched set).							1	
- 6		558065-7	. . BOLT, Poppet, 4-way solenoid valve (Altered from 555803).							1	
- 7		558065-9	. . RING, Poppet, 4-way solenoid valve (Altered from 555813)							1	
- 8		558065-5	. . ARMATURE, 4-way solenoid valve (Altered from 555804)							1	
- 9		555815	. . SPRING, Compression, 4-way control valve							1	
-10		558065-3	. . SOLENOID ASSY, 4-way solenoid valve (Brazed) (Altered from 558066) (J14 and J15)							1	
-10A		RD421-5001-0016	. . . INSULATOR (NHA 103850)							8	
-11		555805	. SPRNG, Elliptical, 4-way solenoid valve							1	
-12		12130PL38	. SEAL (MFD by 08199)							2	
-13		555806	. DISC, Flexure, 4-way solenoid valve							2	
-14		555811	. LIP SEAT, Lower poppet, 4-way solenoid valve							1	
-15		555812	. LIP SEAT, Upper poppet, 4-way solenoid valve							1	
-16		555810	. RETAINER, Body, control valve, 4-way							2	
-17		550339	. DISK, Body, 4-way control valve							2	
-18		12130PL30	. SEAL (MFD by 08199)							2	
-19		554812	. LIP SEAT, Body, control valve, 4-way							2	
-20		12130PL26	. SEAL (MFD by 08199).							2	
-21		550338	. DISK, Poppet, 4-way control valve							2	
-22		554807	. SPACER, Poppet, control valve, 4-way							1	
-23		554805	. RETAINER, Poppet, control valve, 4-way							2	
-24		555808	. SPACER, Body, 4-way solenoid valve							1	
		555768	. BODY ASSY, 4-way solenoid valve							1	
-25		MS51923-157	. . PIN							2	
-26		555768-3	. . BODY, 4-way solenoid valve							1	



J2-4-14

Figure 10. High-Pressure Relief Valve Assembly

FIG. & INDEX NO.	ZONE NO.	PART NUMBER	DESCRIPTION							UNITS PER ASSY.	USABLE ON CODE
			1	2	3	4	5	6	7		
10-		551255	VALVE ASSY, Relief, high-pressure, helium (See figure 8, index 1, for REQMT).							REF	
- 1		AN507C832R8	. SCREW							3	
- 2		554960	. SEAT, Relief valve, high pressure							1	
- 3		No Number	. BALL, 1/8 IN. Tungsten carbide, grade 10 (MFD by 06144)							1	
- 4		551254	. RETAINER, Relief valve, high pressure							1	
- 5		554964	. SPRING, Relief valve, high pressure							1	
- 6		554965	. SHIM, Relief valve, high pressure							3	
- 7		551252	. BODY, Relief valve, high pressure.							1	
- 8		RD171-4005-0002	. NAMEPLATE							1	
- 9		RD171-0001-0001	. PLATE							1	

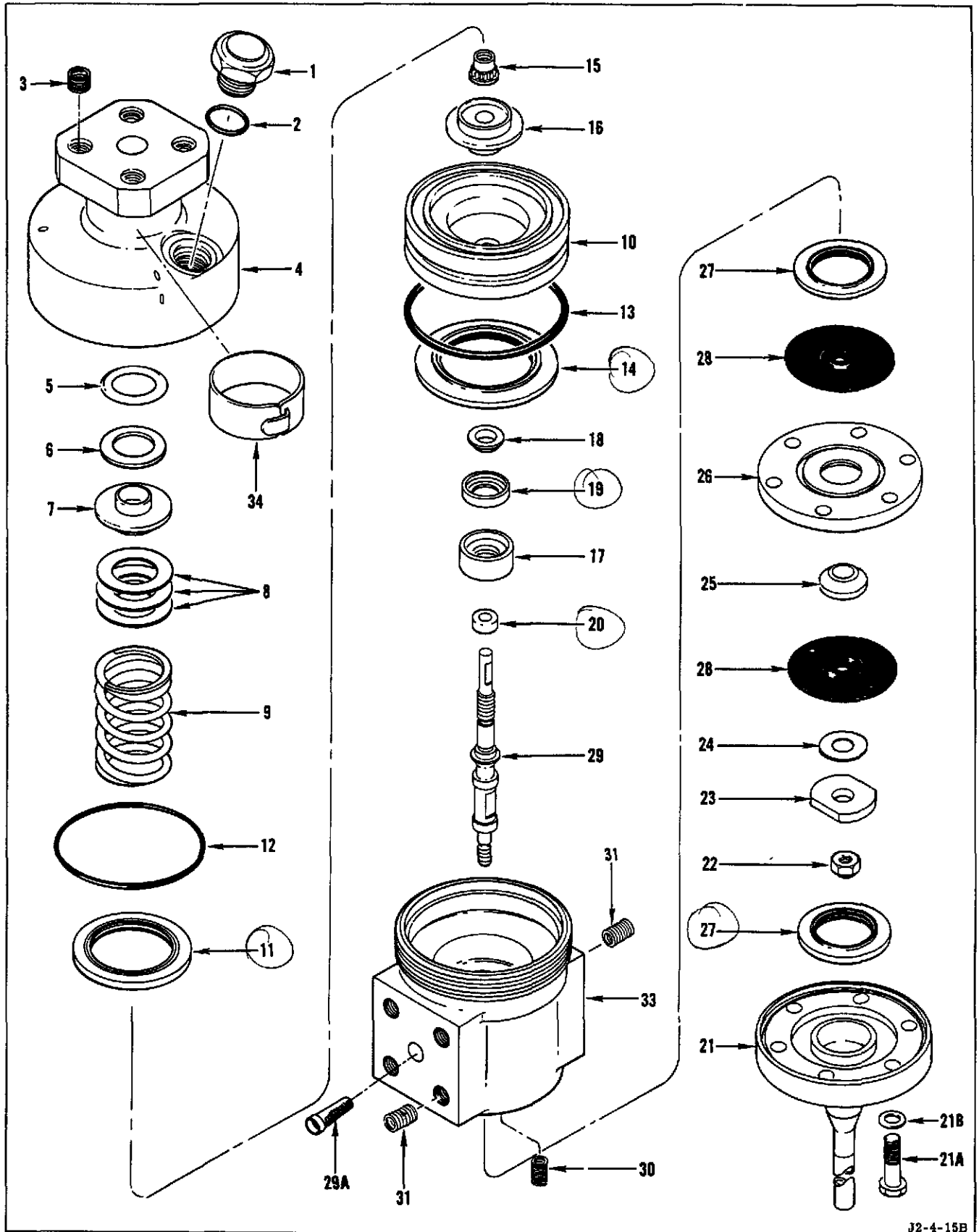


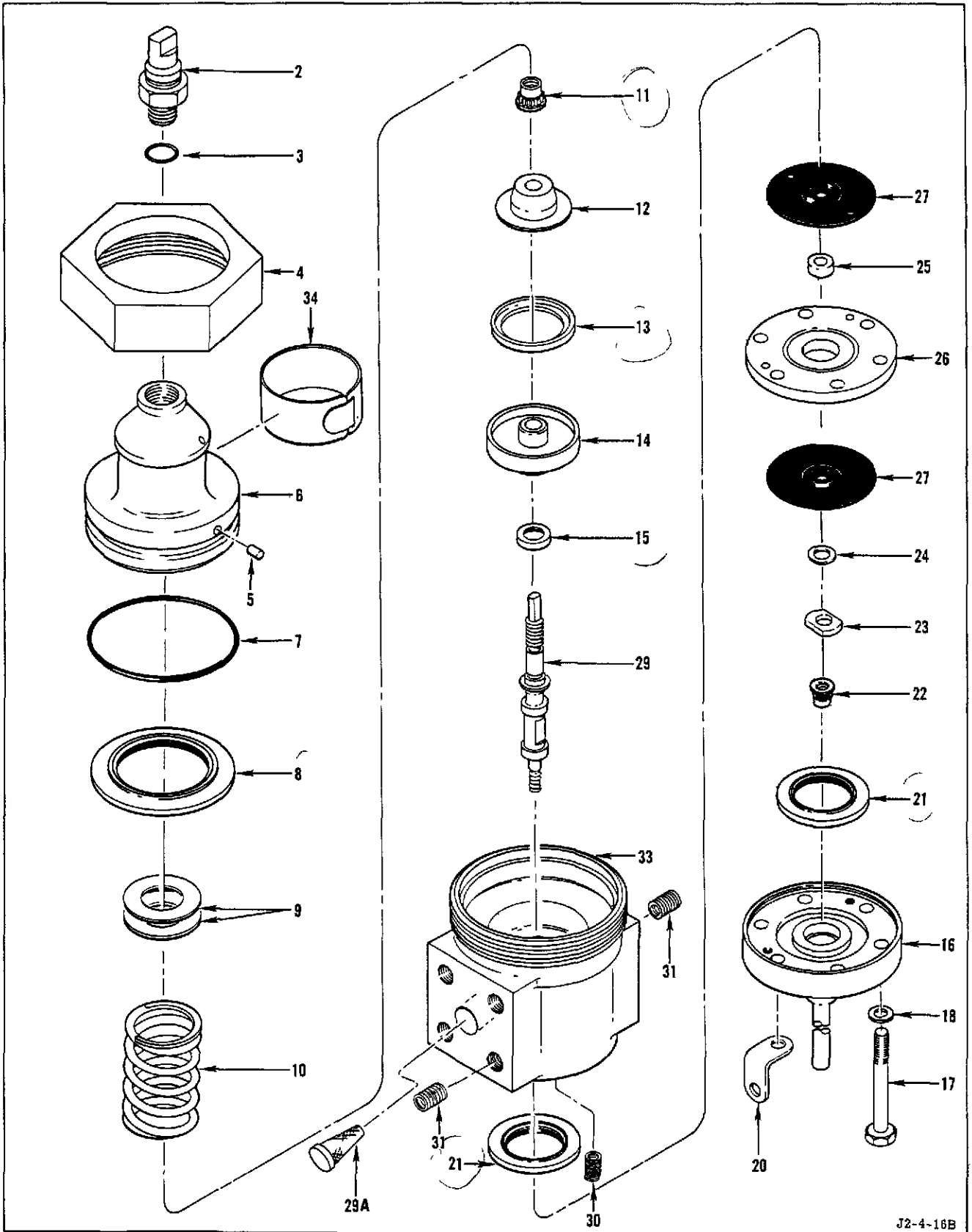
Figure 11. Pressure-Actuated Purge Control Valve Assembly

Section II
Control System

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FIG. & INDEX NO.	ZONE NO.	PART NUMBER	DESCRIPTION							UNITS PER ASSY.	USABLE ON CODE
			1	2	3	4	5	6	7		
11-		558126 (a)	VALVE ASSY, Purge control, pressure-actuated, normally closed (May replace 557823 or 558126-11 for spares) (See figure 4, index 56, for REQMT)							REF	
		558126-11 (a)	VALVE ASSY, Purge control, pressure-actuated, normally closed (May replace 557823 or 558126 for spares) (See figure 4, index 56, for REQMT)							REF	
		558126-21	VALVE ASSY, Purge control, pressure-actuated, normally closed (See figure 4, index 56, for REQMT)							REF	
- 1		553364	VALVE ASSY, Relief, low temperature 1/4 IN. vent (Alternate 553364-21)							1	
- 2		MS28778-4	PACKING							1	
		557807	DOME ASSY, Purge control valve, pressure-actuated, normally closed							1	
- 3		1191-4CNVX375	INSERT (MFD by 91767)							4	
- 4		557807-3	DOME, Purge control valve, pressure-actuated, normally closed							1	
- 5		TRB8158	RACE (MFD by 60380)							1	
- 6		NTA815SS	BEARING (MFD by 60380)							1	
- 7		557206	GUIDE, Shut off valve, pressure-actuated, normally open							1	
- 8		555779	SHIM, Sequence control valve, pressure-actuated							3	
- 9		555778	SPRING, Sequence control valve, pressure-actuated							1	
-10		557203	SEAT, Shut off valve, pressure-actuated, normally open							1	
-11		RD261-3010-0020	SEAL (Alternate RD261-3013-0020)							1	
-12		MS29513-135	PACKING							1	
-13		MS29513-138	PACKING							1	
-14		RD261-3010-0028	SEAL (Alternate RD261-3013-0028)							1	
-15		RD114-8003-1004	NUT							1	
-16		557204	RETAINER, Shut off valve, pressure-actuated, normally open							1	
-17		557192	CAGE, Shut off valve, pressure-actuated							1	
-18		557190	RETAINER, Shut off valve, pressure-actuated							1	
-19		557191	SEAL, Shut off valve, pressure-actuated							1	
-20		555781	SEAL, Sequence control valve, pressure-actuated							1	
-21		557212	CAP, Shut off valve, pressure-actuated, normally open							1	
-21A		RD111-1009-6316	BOLT (AP)							6	
-21B		LD153-0013-0001	WASHER (AP)							6	
-22		NAS679C3W	NUT (Alternate MS21043-3)							1	
-23		557209	RING, Shut off valve, pressure-actuated, normally open							1	
-24		557213	RING, Backup, shut off valve, pressure-actuated, normally open							1	
-25		557208	SPACER, Shut off valve, pressure-actuated, normally open							1	
-26		557211	PLATE, Shut off valve, pressure-actuated, normally open							1	
-27		RD261-3010-0016	SEAL (Alternate RD261-3013-0016)							2	
-28		556962	DIAPHRAGM, Sequence control valve, pressure-actuated							2	
-29		555793	SHAFT, Sequence control valve, pressure-actuated							1	
-29A		NA5-260169-1	FILTER ELEMENT							1	
		558082	BODY ASSY, Shut off valve, pressure-actuated, normally closed							1	
-30		3591-3CNVX380	INSERT (MFD by 91767)							6	
-31		3591-4CNVX375	INSERT (MFD by 91767)							4	
-32		DELETED									
-33		558082-3	BODY, Shut off valve, pressure-actuated, normally closed							1	
-34		RD171-4008-0001	NAMEPLATE (Alternate RD171-4009-0001)							1	

(a) For interchangeability status, refer to the Component Interchangeability List.



J2-4-16B

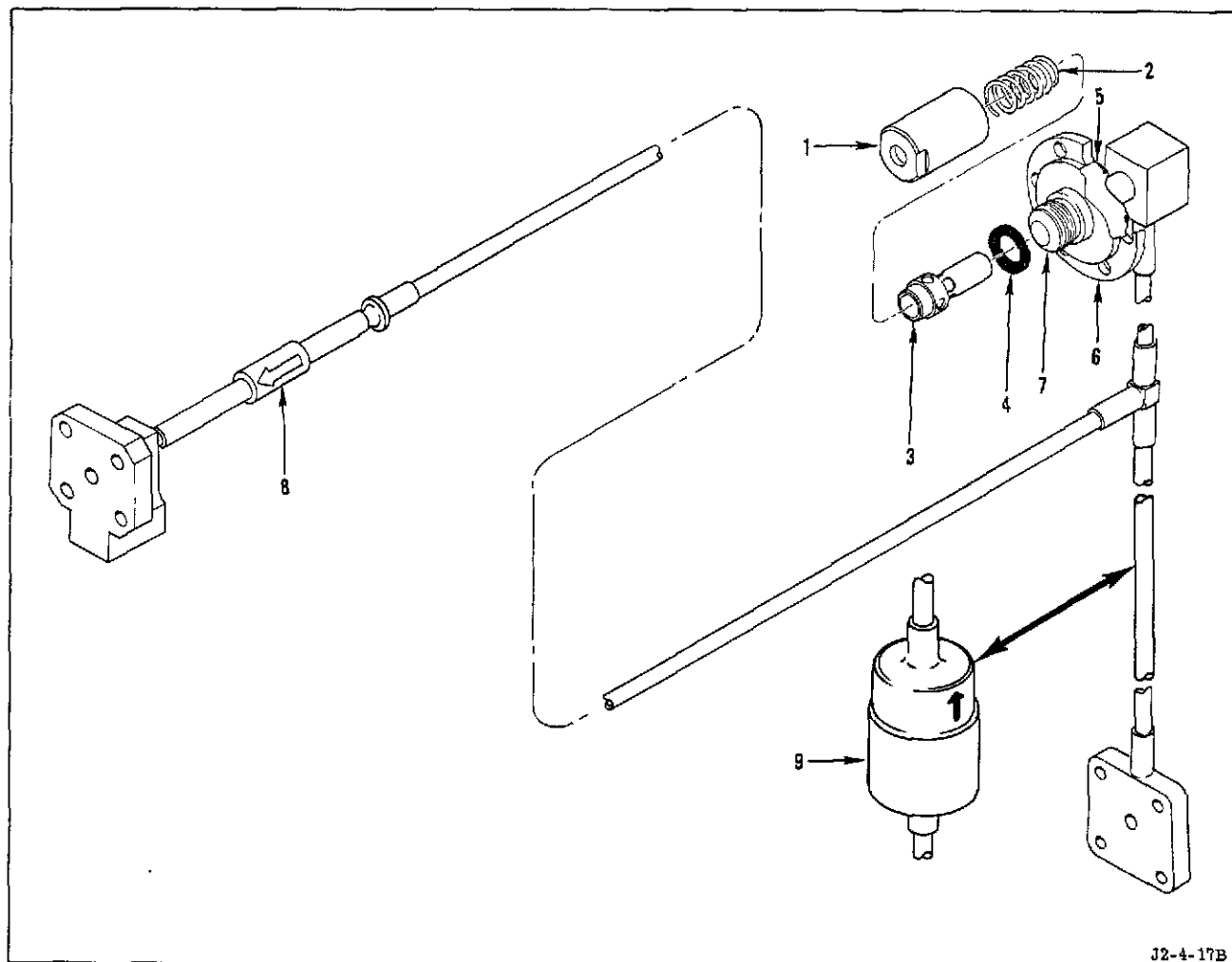
Figure 12. Pressure-Actuated Shutoff (Fast-Shutdown) Control Valve Assembly

Section II
Control System

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FIG. & INDEX NO.	ZONE NO	PART NUMBER	DESCRIPTION							UNITS PER ASSY.	USABLE ON CODE
			1	2	3	4	5	6	7		
12-		557817-11 (a)	VALVE ASSY, Shutoff, pressure-actuated normally closed (Fast shutdown) (May replace 556936 or 557817 for spares) (See figure 14, index 90, for REQMT)							REF	HNB
		558127-11 (a)	VALVE ASSY, Shutoff, pressure-actuated, normally closed (Fast shutdown) (May replace 558127 for spares) (See figure 14, index 90, for REQMT)							REF	HNA
- 1		DELETED									
- 2		553372-11	VALVE ASSY, 1/4 IN. vent port check (May replace 553372 for spares)							1	
- 3		MS28778-4	PACKING							1	
- 4		555786	COLLAR, Sequence control valve, pressure-actuated							1	
		556971	DOME ASSY, Shutoff valve, pressure-actuated, normally closed							1	
- 5		MS171482	PIN							1	
- 6		556971-3	DOME, Shutoff valve, pressure-actuated, normally closed							1	
- 7		MS29513-138	PACKING							1	
- 8		RD261-3010-0028	SEAL							1	
- 9		555779	SHIM, Sequence control valve, pressure-actuated							2	
- 10		555778	SPRING, Sequence control valve, pressure-actuated							1	
- 11		RD114-8003-2004	NUT (NHA 557817-11)							1	
- 11		RD114-8003-1004	NUT (NHA 558127-11)							1	
- 12		555787	RETAINER, Sequence control valve, pressure-actuated							1	
- 13		555782	SEAL, Sequence control valve, pressure-actuated							1	
- 14		557812	DISC, Sequence control valve, pressure-actuated							1	
- 15		555781	SEAL, Sequence control valve, pressure-actuated							1	
- 16		557810	ADAPTER, Shutoff valve, pressure-actuated, normally closed (NHA 557817-11)							1	
- 16		558129	ADAPTER, Shutoff valve, pressure-actuated, normally closed (NHA 558127-11)							1	
- 17		RD111-1009-6316	BOLT (AP)							6	
- 18		LD153-0013-0001	WASHER (AP)							5	
- 19		DELETED									
- 20		502833-15	BRACKET, Harness support							1	
- 21		RD261-3010-0016	SEAL							2	
- 22		RD114-8003-1003	NUT (NHA 557817-11)							1	
- 22		NAS679C3W	NUT (NHA 558127-11)							1	
- 23		553948	RING, Shutoff valve, pressure-actuated, normally closed (NHA 557817-11)							1	
- 23		556934	RING, Shutoff valve, pressure-actuated, normally closed (NHA 558127-11)							1	
- 24		556973	RING, Backup, Shutoff valve, pressure-actuated, normally closed							1	
- 25		555785	SPACER, Sequence control valve, pressure-actuated							1	
- 26		555790	PLATE, Sequence control valve, pressure-actuated							1	
- 27		556962	DIAPHRAGM, Sequence control valve, pressure-actuated							2	
- 28		DELETED									
- 29		557816	SHAFT, Sequence control valve, pressure-actuated							1	
- 29A		NA5-260169-1	FILTER ELEMENT (NHA 558127-11 only)							1	
		557813	BODY ASSY, Shutoff valve, pressure-actuated, normally closed (NHA 557817-11)							1	
		558082	BODY ASSY, Shutoff valve, pressure-actuated, normally closed (NHA 558127-11)							1	
- 30		MS21209F1-20	INSERT (NHA 557817-11)							6	
- 30		3591-3CNVX380	INSERT (MFD by 91767) (NHA 558127-11)							6	
- 31		MS2120F4-15	INSERT (NHA 557817-11)							4	
- 31		3591-4CNVX375	INSERT (MFD by 91767) (NHA 558127-11)							4	
- 32		DELETED									
- 33		557813-3	BODY, Shutoff valve, pressure-actuated, normally closed (NHA 557817-11)							1	
- 33		558082-3	BODY, Shutoff valve, pressure-actuated, normally closed (NHA 558127-11)							1	
- 34		RD171-4004-0002	NAMEPLATE							1	

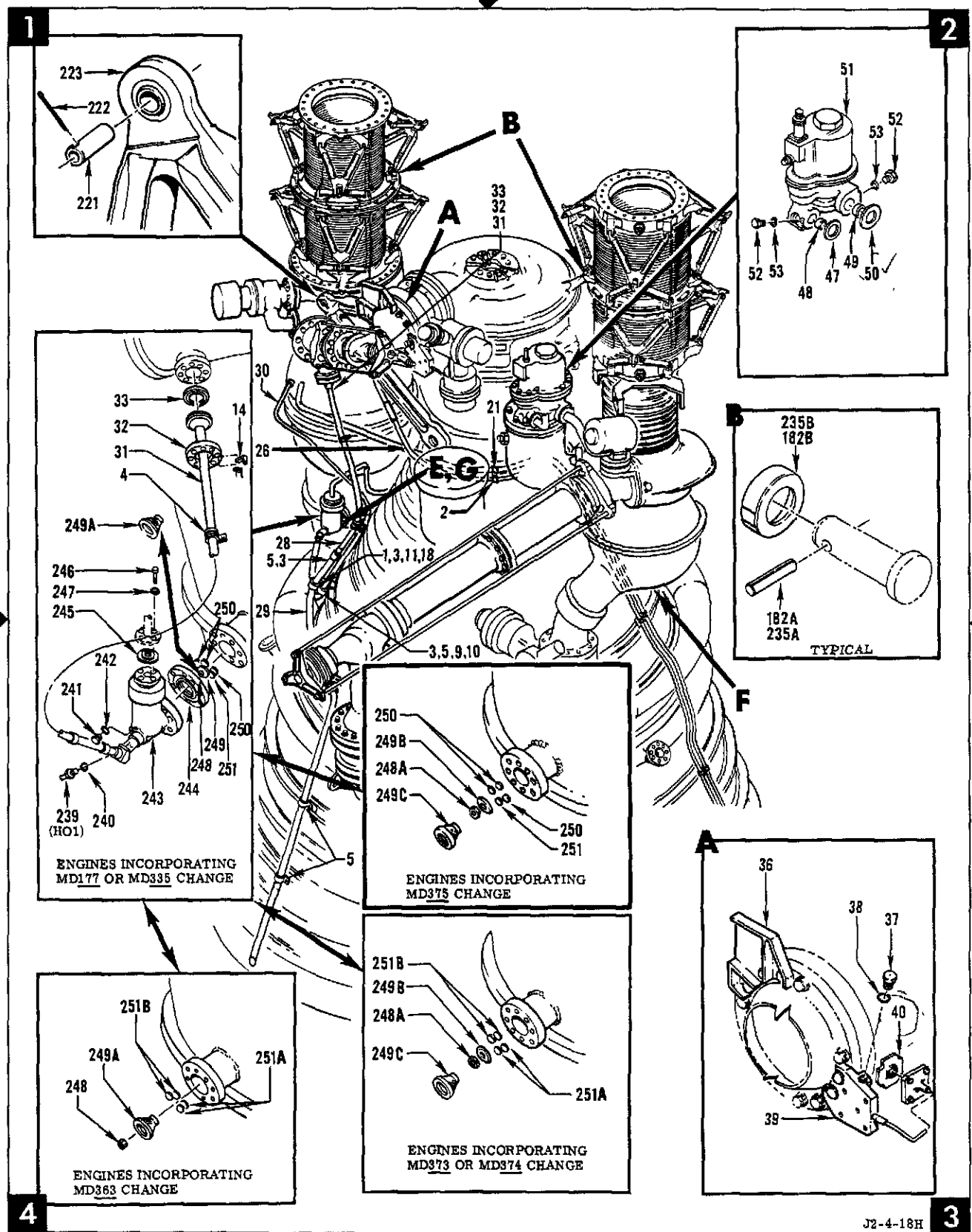
(a) For interchangeability status, refer to the Component Interchangeability List.



J2-4-17B

Figure 13. Oxidizer Dome Purge Manifold Assembly

FIG & INDEX NO	ZONE NO.	PART NUMBER	DESCRIPTION							UNITS PER ASSY.	USABLE ON CODE
			1	2	3	4	5	6	7		
13-		557918-11	MANIFOLD ASSY. Purge, oxidizer dome and gas generator oxidizer cavity							REF	
		557918-31	(May replace 557918 for spares) (See figure 4, index 13, for REQMT)								
			MANIFOLD ASSY. Purge, oxidizer dome and gas generator oxidizer cavity							REF	
			(See figure 4, index 13, for REQMT)								
			PARTIAL BREAKDOWN FOLLOWS								
		554078	. VALVE ASSY. Check, injector purge (Oxidizer injector purge check valve)							1	
- 1		553087	. . HOUSING Check valve, injector purge							1	
- 2		554079	. . SPRING, Compression							1	
- 3		308769	. . POPPET, Check valve, injector purge							1	
- 4		553842	. . SEAL, Check valve, 1/2 IN. (1500 PSI)							1	
- 5		554042	. . LOCK RING, Check valve, injector purge							1	
- 6		554043	. . RING, Retaining, check valve, injector purge							1	
- 7		554041	. . END CAP, Check valve, injector purge							1	
- 8		557755-11	(a) . VALVE ASSY, Check, 1/4 IN.							1	
		RD172-0012-0001	. TAPE (PNEUMATIC)							AR	
		RD172-0014-0018	. TAPE (HELIUM)							AR	
		RD172-0018-0450	. TAPE (450 PSI)							AR	
- 9		556480-11	. VALVE ASSY. Check, helium fill (NHA 557918-31)							1	
(a) For interchangeability status, refer to the Component Interchangeability List.											



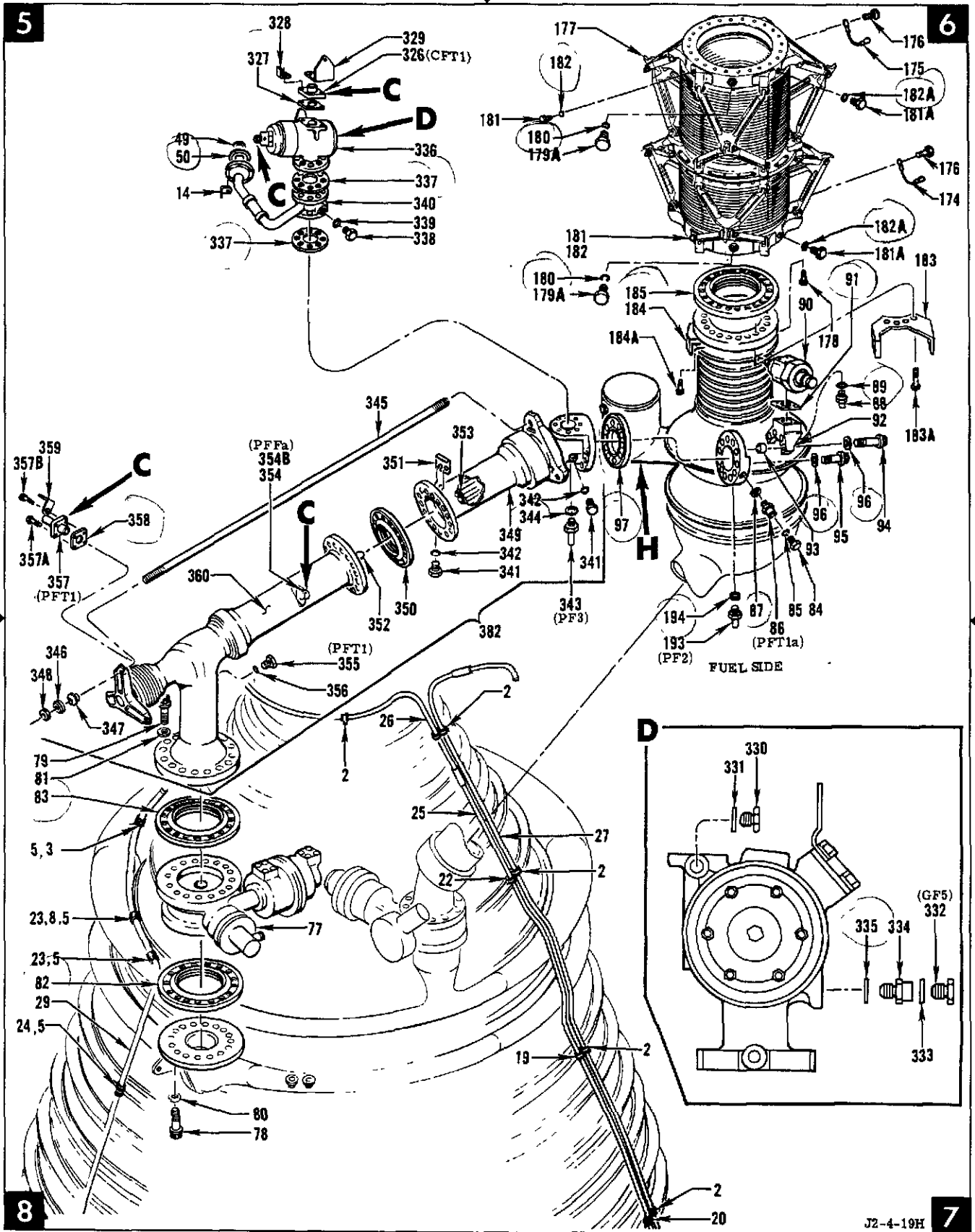


Figure 14. Propellant Feed System Installation (Sheet 2 of 6)

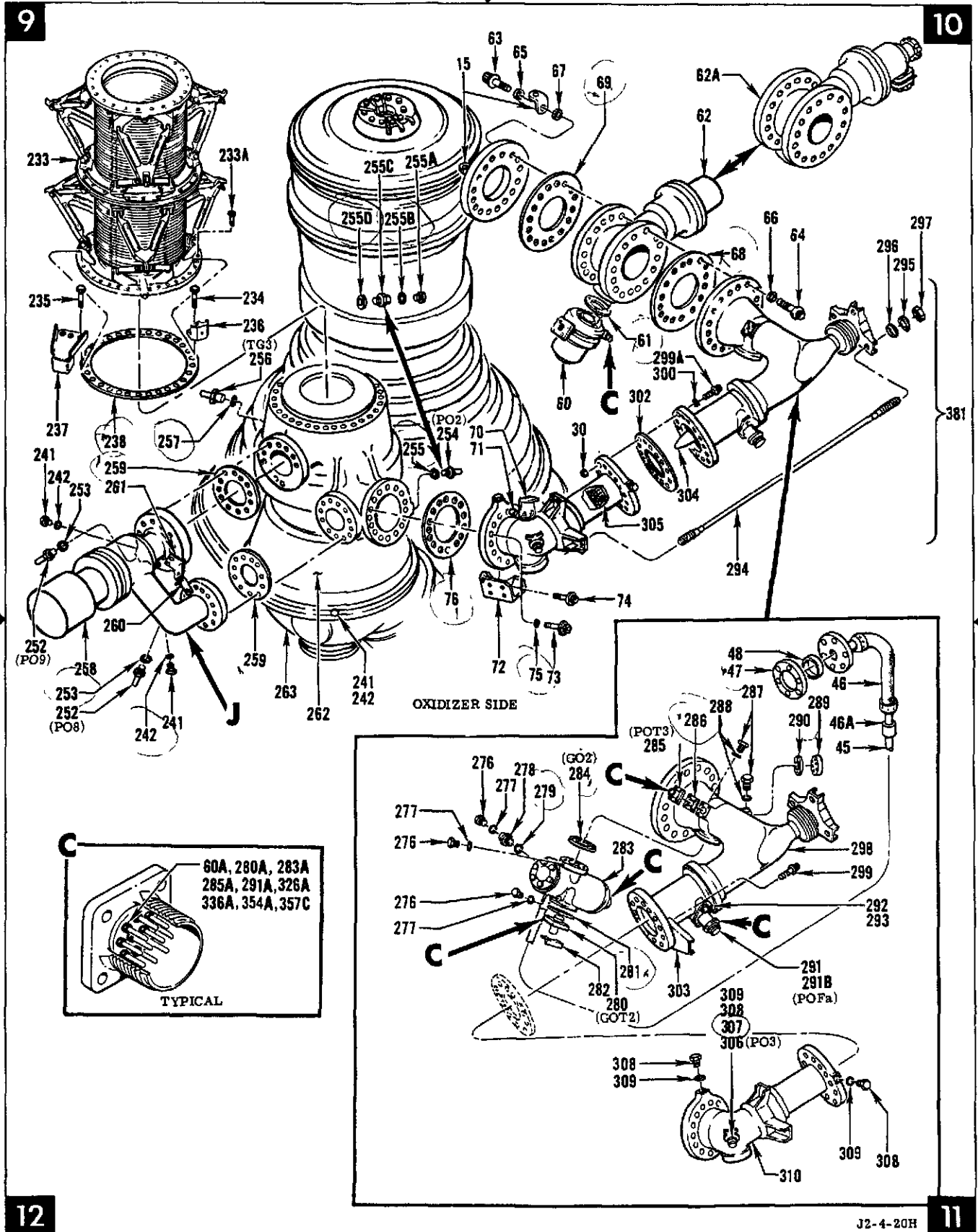
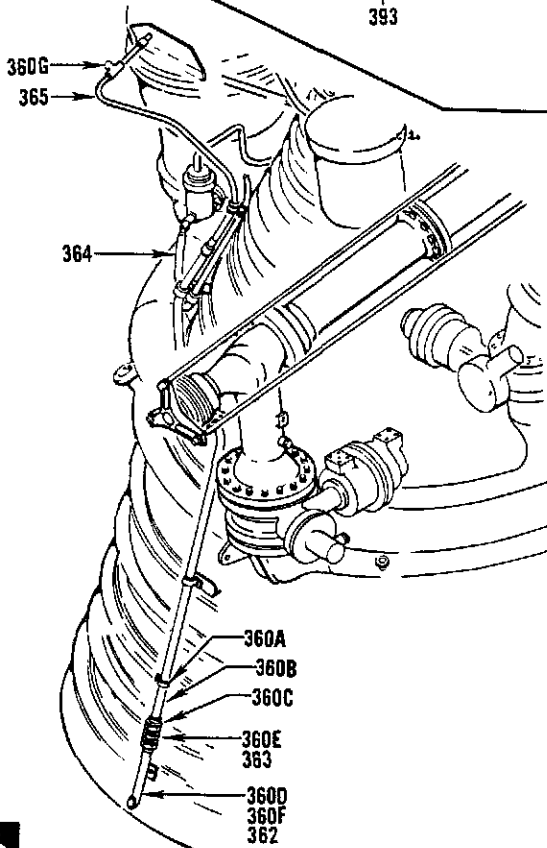
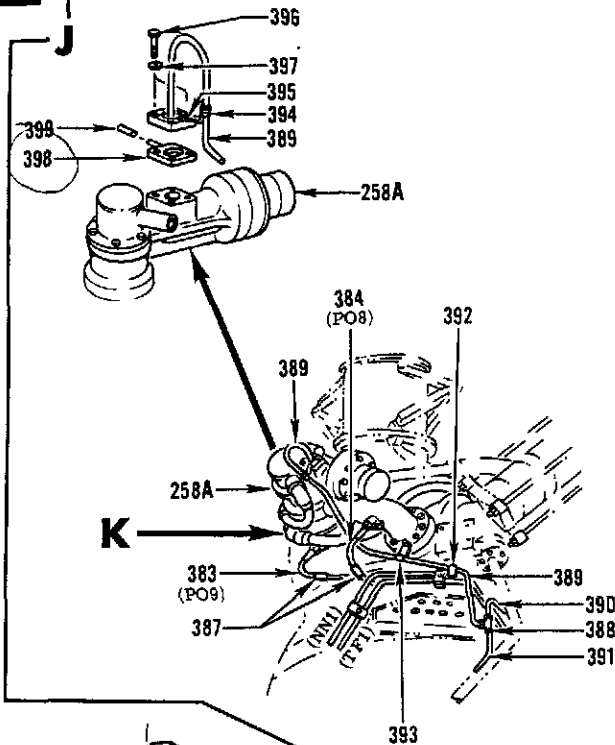


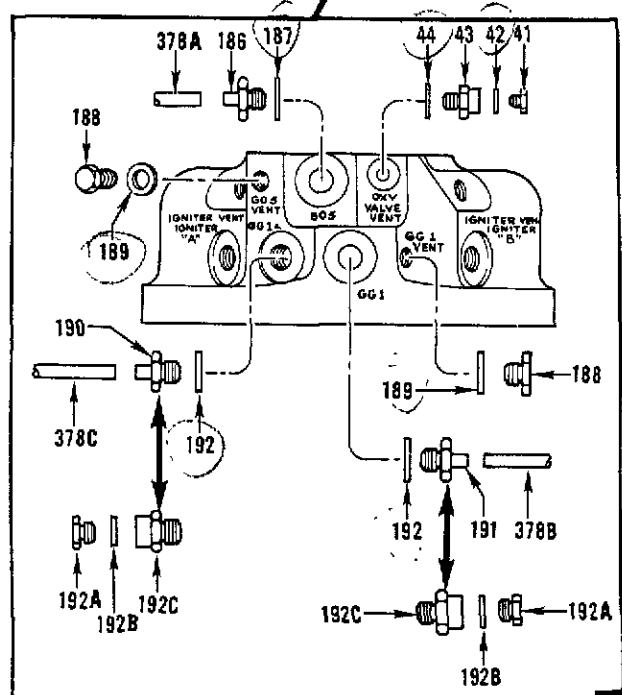
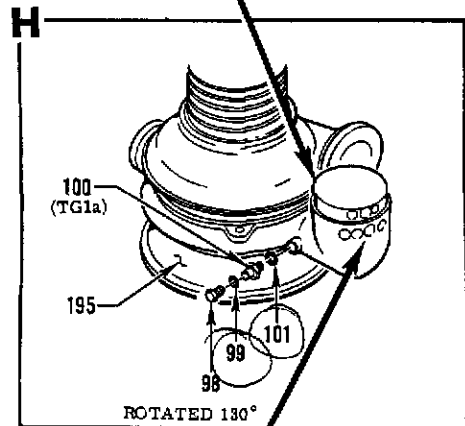
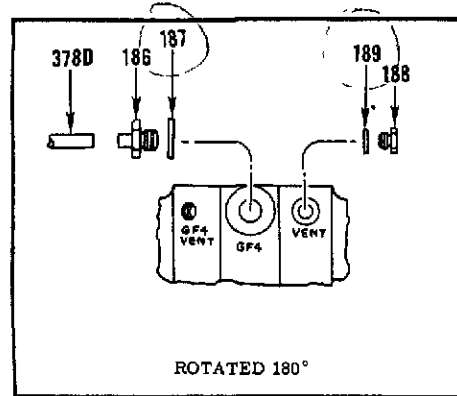
Figure 14. Propellant Feed System Installation (Sheet 3 of 6)

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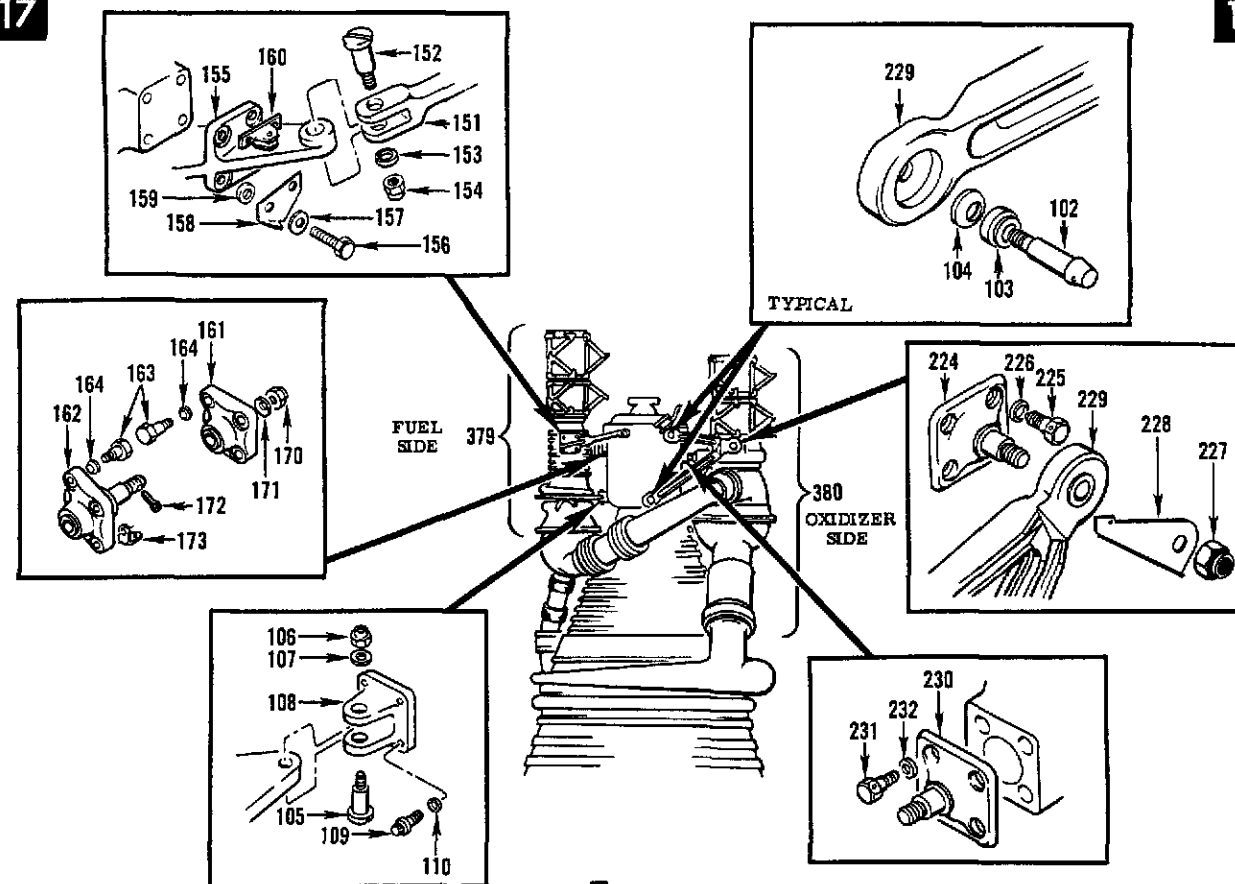
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J2-4-89D

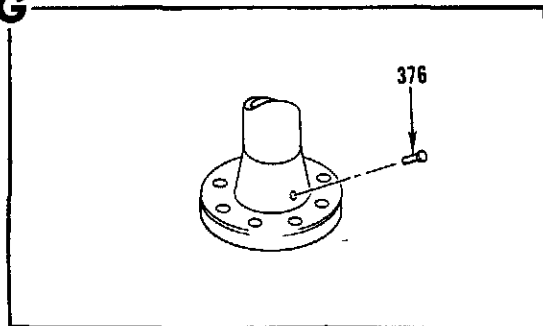
Figure 14. Propellant Feed System Installation (Sheet 4 of 6)

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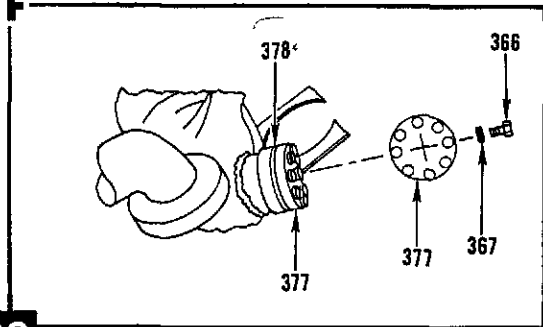
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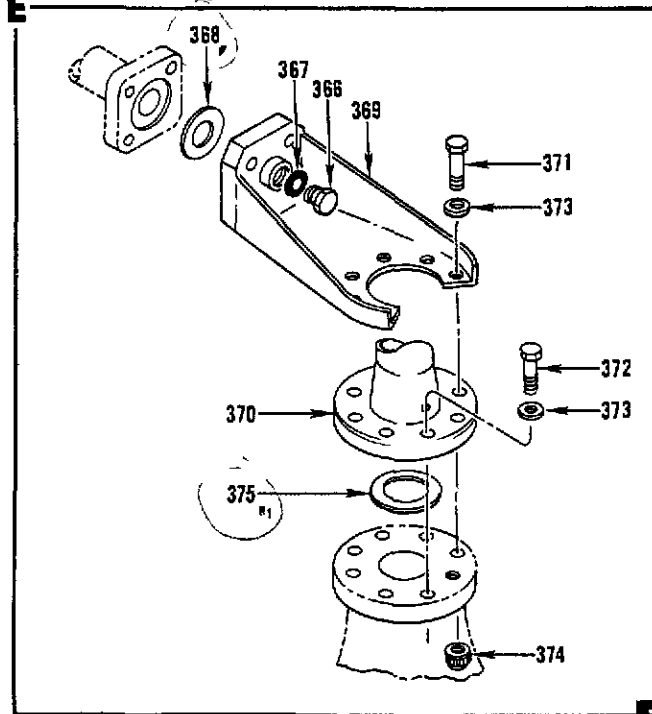
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J2-4-21C

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Figure 14. Propellant Feed System Installation (Sheet 5 of 6)

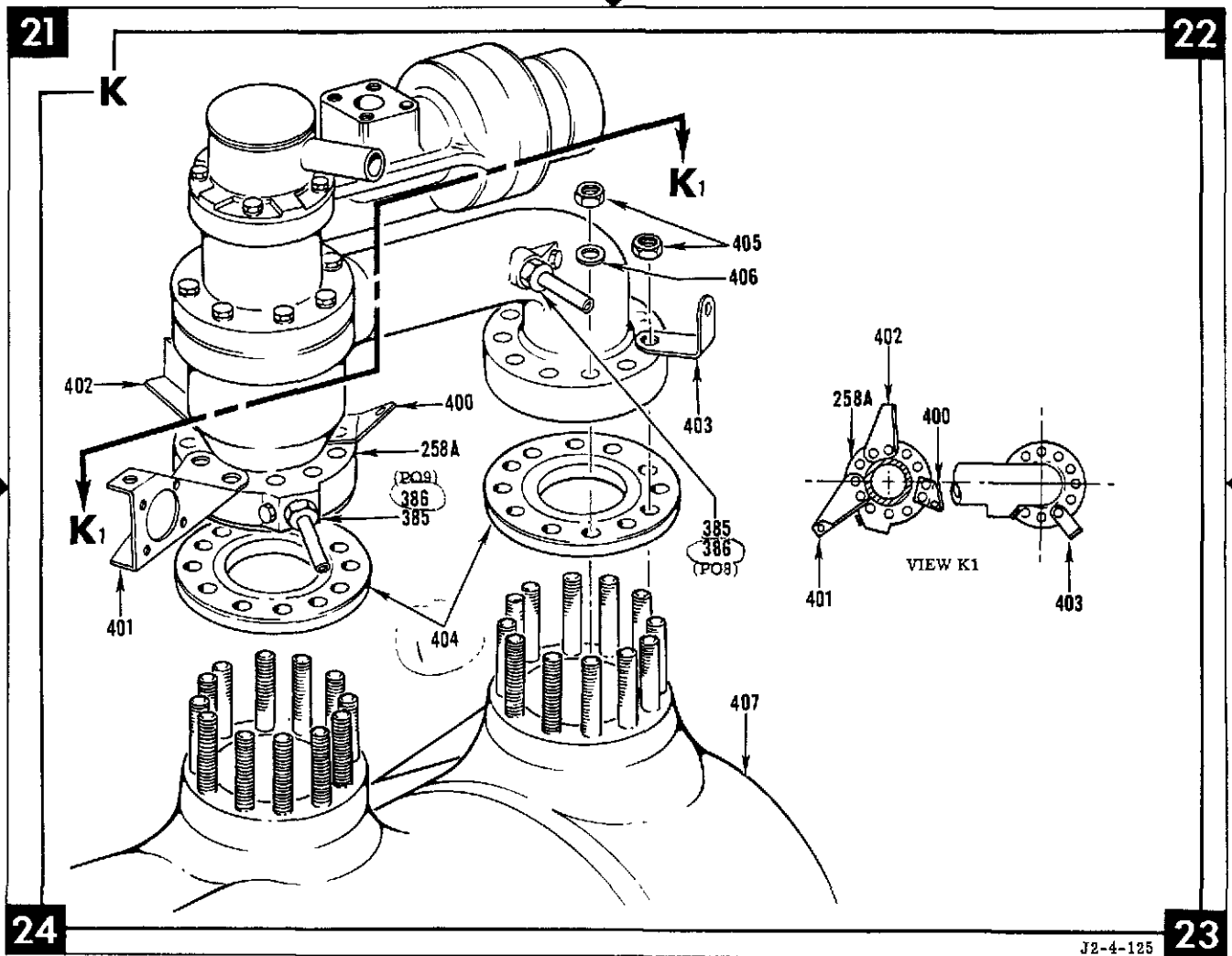


Figure 14. Propellant Feed System Installation (Sheet 6 of 6)

FIG & INDEX NO	ZONE NO	PART NUMBER	DESCRIPTION							UNITS PER ASSY	USABLE ON CODE		
			1	2	3	4	5	6	7				
			PARTS LIST CONTINUED ON SUCCEEDING PAGES										

FIG & INDEX NO	ZONE NO	PART NUMBER	DESCRIPTION	UNITS PER ASSY			USABLE ON CODE
			1 2 3 4 5 6 7				
14-		406651	PROPELLANT FEED SYSTEM INSTL (See figure 1, index 3) (Engines J-2046, J-2056, and J-2062) (Engines J-2039-1, J-2075 THRU J-2130) (Engines J-2131 THRU J-2152)	REF			
- 1	1	RE127-2001-0004	CLAMP	1	1	1	
- 2	1,7,8	RE127-2001-0006	CLAMP	10	9	9	
- 3	1,8	RE127-2001-0008	CLAMP	1	2	2	
- 4	1	RE127-2001-0010	CLAMP	2	2	2	
- 5	1,4,8	RE127-2001-0014	CLAMP	5	5	5	
		RD111-1010-3306	BOLT (AP)	1	1	1	
		RD111-1010-3308	BOLT (AP)	1	1	1	
		RD111-1010-3311	BOLT (AP)	1	1	1	
		RD111-1010-3314	BOLT (AP)	1	1	1	
		ANS25-10R7	SCREW (AP)	1	1	1	
		NAS1101C3-8	SCREW (AP)	1	1	1	
		NAS1101C3-16	SCREW (AP)	1	1	1	
		NAS1101C3-20	SCREW (AP)	1	1	1	
		NAS1101C3-28	SCREW (AP)	1	1	1	
		NAS1101C3-32	SCREW (AP)	1	1	1	
		NAS1101C3-34	SCREW (AP)	1	1	1	
		LD153-0013-0001	WASHER (AP)	1	1	1	
		RD153-1002-0003	WASHER (AP)	1	1	1	
		RD114-8005-2003	NUT (AP)	1	1	1	
		NAS679C3W	NUT (AP)	1	1	1	
- 6		DELETED					
- 7		DELETED					
- 8	8	NAS1057T4-075	SPACER	1	1	1	
- 9	3	NAS1057T4-106	SPACER	1	1	1	
-10	3	NAS1057T4-125	SPACER	1	1	1	
-11	1	NAS1057T4-150	SPACER		1	1	
-12		DELETED					
		MS9025-09	CLAMP	1	1	1	
		MS9101-02	BRACKET	1	1	1	
		MS9102-12	BRACKET		1	1	
		MS9102-51	BRACKET	3	2	2	
		NAS1101C4-10	SCREW (AP)	1	1	1	
		LD153-0013-0002	WASHER (AP)	1	1	1	
		NAS679C4W	NUT (AP)	1	1	1	
-13		DELETED					
-14	1,5	502633-23	BRACKET, Harness support	1	1	1	
-15	9	502633-29	BRACKET, Harness support	1	1	1	
-16		DELETED					
-17		DELETED					
-18	1	407617	BRACKET, Tube support	1	1	1	
-19	7	408718	SUPPORT, Drain line, turbine seal cavity	1	1	1	
-20	7	410109	SUPPORT, Drain line, turbopump seal cavity	1	1	1	
-21	2	408705	SUPPORT, Drain line, turbopump seal cavity	1	1	1	
-22	8	408719	SUPPORT, Drain line, turbopump seal cavity	1	1	1	
-23	8	410105	SUPPORT, Drain line, primary seal, LOX pump	2	2	2	
-24	8	408720	SUPPORT, Drain line, primary seal, LOX pump	1	1	1	NLB
		RD111-1009-3307	BOLT (AP)	1	1	1	
		RD111-1009-3308	BOLT (AP)	1	1	1	
		RD111-1009-3319	BOLT (AP)	1	1	1	
		RD111-1010-3006	BOLT (AP)	1	1	1	
		LD153-0013-0001	WASHER (AP)	1	1	1	
		RD114-8005-2003	NUT (AP)	1	1	1	
		NAS679C3W	NUT (AP)	1	1	1	
-25	8	408703	TUBE ASSY, Drain, turbine seal cavity LOX pump		1	1	
		RD172-0018-0025	TAPE (25 PSI)	AR	AR	AR	
		RD172-0014-0006	TAPE (COMBUSTION GAS)	AR	AR	AR	
		RD172-0014-0040	TAPE (DRAIN)	AR	AR	AR	
-26	1,8	408703-3	TUBE, 321 CRES, 1/2 IN. OD by 0.035 gage by 60.00 IN. LG		1	1	
		408716	TUBE ASSY, Drain, turbine seal cavity, LOX pump (Oxidizer, ... turbine seal drain line)	1	1	1	
		RD172-0018-0001	TAPE (1 PSI)	AR	AR	AR	
		RD172-0014-0006	TAPE (COMBUSTION GAS)	AR	AR	AR	
		408716-3	TUBE, 321 CRES, 1/2 IN. OD by 0.035 gage by 75.00 IN. LG		1	1	
		RD273-1023-3005	SLEEVE (RD273-1029-2001 sleeve may be installed)	2	2	2	
-27	7	408708	TUBE ASSY, Drain, turbine seal cavity, fuel pump (Fuel turbine seal drain line) (Welded)	1	1	1	DAC
-27	7	408708-11	TUBE ASSY, Drain, turbine seal cavity, fuel pump (Fuel turbine seal drain line) (Welded)		1	1	JTA
		RD172-0018-0025	TAPE (25 PSI)	AR	AR	AR	
		RD172-0014-0006	TAPE (COMBUSTION GAS)	AR	AR	AR	
		RD172-0014-0040	TAPE (DRAIN)	AR	AR	AR	
		RD273-1023-3005	SLEEVE (RD273-1029-2001 sleeve may be installed)	1	1	1	

Propellant Feed System

FIG & INDEX NO.	ZONE NO	PART NUMBER	DESCRIPTION							UNITS PER ASSY			USABLE ON CODE
			1	2	3	4	5	6	7				
14-28	1	410121	SLEEVE, Tube reducer							1	1	1	BVC FXC
-29	3, 4, 8	410110	TUBE ASSY, Drain, primary seal, LOX pump (Welded)							1	1	1	
-29	3, 4, 8	410386	TUBE ASSY, Drain, primary seal, LOX pump (Welded)							1	1	1	
-30	1	410122	TUBE ASSY, Drain, primary seal, LOX pump (Welded)							1	1	1	
		410119	TUBE ASSY, Drain, primary seal, LOX pump (Retrofit field configuration)							NP			
		RD172-0018-0025	TAPE (25 PSI)							AR	AR	AR	
		RD172-0014-0040	TAPE (DRAIN)							AR	AR	AR	
		RD172-0014-0027	TAPE (LIQUID OXYGEN)							AR	AR	AR	
		RD273-1023-3006	SLEEVE (RD273-1023-7006 or RD273-1029-2002 sleeve may be installed)							1	1	1	
		410124	FLANGE, Tube 5/8 IN. (Retrofit field configuration) (Used with 410119)							NP			
-31	1	407624	TUBE ASSY, Inlet, heat exchanger (Welded)							1	1	1	
		RD111-1009-3416	BOLT (AP)							8	8	8	
		LD153-0013-0002	WASHER (AP)							8	8	8	
		RD172-0001-0001	TAPE (ROCKET OXIDIZER)							AR	AR	AR	
		RD172-0001-0027	TAPE (LIQUID OXYGEN)							AR	AR	AR	
		RD172-0018-1250	TAPE (1250 PSI)							AR	AR	AR	
		RD172-0014-0039	TAPE (FLOW)							AR	AR	AR	
-32	1	407593	RING, Heat exchanger inlet line							1	1	1	
-33	1	404873-7	SEAL, Pressure-actuated, cryogenic							1	1		
-33	1	410874 (a)	SEAL, Pressure-actuated, cryogenic									1	
-34		DELETED											
-35		DELETED											
-36	3	557430	BRACKET, Support, purge control valve							1	1	1	
-37	3	RD273-1020-1002	PLUG AND BLEEDER							1	1	1	
-38	3	RD261-6001-0001	GASKET							1	1	1	
-39	3	558101	ADAPTER ASSY, Pressure switch, mainstage (Welded)							1	1	1	
		RD111-1009-3416	BOLT (AP)							4	4	4	
		LD153-0013-0002	WASHER (AP)							4	4	4	
		RD172-0001-0001	TAPE (ROCKET OXIDIZER)							AR	AR	AR	
		RD172-0014-0027	TAPE (LIQUID OXYGEN)							AR	AR	AR	
		RD172-0018-0975	TAPE (975 PSI)							AR	AR	AR	
-40	3	459709	SEAL, Pressure-actuated, cryogenic							1	1	1	GMA
-41	15	RD273-1020-1002	PLUG AND BLEEDER							1			
-42	15	RD261-6001-0001	GASKET							1			
-43	15	702497	PLUG, Instrumentation port, vented							1			
-44	15	408346	SEAL, Pressure actuated, hot-gas							1	1		UN JYA
-44	15	408799 (a)	SEAL, Pressure-actuated, hot gas									1	
-45	11	408711	TUBE ASSY, Oxidizer, gas generator bootstrap (Gas generator oxidizer line)							1	1	1	
		RD172-0001-0001	TAPE (ROCKET OXIDIZER)							AR	AR	AR	
		RD172-0014-0027	TAPE (LIQUID OXYGEN)							AR	AR	AR	
		RD172-0018-1000	TAPE (1000 PSI)							AR	AR	AR	
		408711-3	TUBE, 321 CRES, 5/8 IN. OD by 0.035 gage by 32.50 IN. LG							1	1	1	
-46	11	408710 (a)	HOSE ASSY, Oxidizer, gas generator bootstrap (Welded)							1			
-46	11	NA5-260113 (a)	HOSE ASSY, Oxidizer, gas generator bootstrap (Welded)								1	1	
		RD111-1009-3414	BOLT (AP)							6	6	6	
		LD153-0013-0002	WASHER (AP)							6	6	6	
		RD172-0014-0027	TAPE (LIQUID OXYGEN)							AR	AR	AR	
		RD172-0014-0039	TAPE (FLOW)							AR	AR	AR	
		RD172-0018-1000	TAPE (1000 PSI)							AR	AR	AR	
-46A	11	RD273-1023-4005	SLEEVE (RD273-1029-3001 sleeve may be installed)							1	1	1	
-47	2, 11	404657-5	SEAL, Pressure-actuated							2	2		
-47	2, 11	410872 (a)	SEAL, Pressure-actuated, cryogenic									2	
-48	2, 11	RD251-4106-XXXX	ORIFICE PLATE (Orifice size determined by calibration tests)							1	1		
-48	2, 11	307587-X	NOZZLE (Nozzle size determined by calibration tests)							1	1	1	RAB
-49	2, 5	RD251-4107-XXXX	ORIFICE PLATE (Orifice size determined by calibration tests)							1	1	1	
-50	2, 5	404657-7	SEAL, Pressure-actuated							1	1		
-50	2, 5	410854 (a)	SEAL, Pressure-actuated, cryogenic							1	1	1	
-51	2	309040-31 (a)	VALVE ASSY, Control, gas generator (See figure 18, index 34 for REQMT)							REF	REF	REF	
		RD111-1009-3415	BOLT (AP)							6	6	6	
		LD153-0013-0002	WASHER (AP)							6	6	6	
-52	2	RD273-1020-1002	PLUG AND BLEEDER							2	2	2	
-53	2	RD261-6001-0001	GASKET							2	2	2	
-54		DELETED											
THRU		308880	VALVE ASSY, Augmented spark igniter (Welded) (J120)							1	1	1	
-59	10	RD111-4010-3415	BOLT (AP)							8	8	8	
-60		LD153-0013-0002	WASHER (AP)							8	8	8	
			PARTIAL BREAKDOWN FOLLOWS										
		308412	POPPET ASSY, ASI valve							1	1	1	
-60A	12	RD421-5001-0016	INSULATOR (NHA 103850)							2	2	2	

(a) For interchangeability status, refer to the Component Interchangeability List.

FIG. & INDEX NO	ZONE NO	PART NUMBER	DESCRIPTION	UNITS PER ASSY			USABLE ON CODE
			1 2 3 4 5 6 7				
14-61	10	404676	SEAL ASSY, Pressure-actuated, cold temperature	1	1	1	
-62	10	411031 (a)	VALVE ASSY, Main oxidizer (May replace 409969, 409973, 410431, or 411031-21 for spares) (See figure 15 for breakdown)	1	1		MFB
-62A	10	411031-11 (a)	VALVE ASSY, Main oxidizer (May replace 410431, 411031, or 411031-21 for spares) (See figure 15 for breakdown)	1	1	1	MFA
-63	10	405856	BOLT, External wrenching, main LOX valve outlet (AP)	16	16	16	
-64	10	405854	BOLT, Propellant feed system, external wrenching, main LOX valve inlet (AP)	16	16	16	
-65	10	405857	WASHER, Countersunk, thrust chamber, LOX inlet (AP)	16	16	16	
-66	10	LD153-0013-0007	WASHER (AP)	11	11	11	
-67	10	LD153-0013-0007	WASHER (AP)	2	2	2	
-68	10	404656-29	SEAL, Pressure-actuated	1	1		
-68	10	459764-5 (a)	SEAL, Pressure-actuated, cryogenic			1	
-69	10	404656-35	SEAL, Pressure-actuated	1	1		
-69	10	459762-3 (a)	SEAL, Pressure-actuated, cryogenic			1	
-70	10	502828	BRACKET, Harness support, LOX high pressure duct	1	1	1	
-71	10	502853-3	SPACER, Bracket, harness support, high pressure duct, LOX	2	2	2	
-72	11	206283	BRACKET, Hydraulic line	1	1	1	
		RD111-1009-3415	BOLT (AP)	1	1	1	
		RD111-3004-5408	BOLT (AP)	2	2	2	
		LD153-0013-0002	WASHER (AP)	3	3	3	
-73	11	RD111-4008-6708	BOLT (AP for discharge duct)	1	1	1	
-73	11	RD111-4008-6714	BOLT (AP for discharge duct)	2	2	2	
-74	10	RD111-4008-6710	BOLT (AP for discharge duct)	13	13	13	
-75	11	LD153-0013-0005	WASHER (AP for discharge duct)	16	16	16	
-76	9	404656-7	SEAL, Pressure-actuated	1	1		
-76	9	459719-5 (a)	SEAL, Pressure-actuated, cryogenic			1	
-77	8	409920	VALVE ASSY, Main fuel (Replaces 409120 for spares) (See figure 16 for breakdown)	1	1	1	
-78	8	RD111-4008-6815	BOLT (AP)	16	16	16	
-79	8	405854	BOLT, Propellant feed system, external wrenching, main LOX valve inlet (AP)	16	16	16	
-80	8	LD153-0013-0006	WASHER (AP)	16	16	16	
-81	8	LD153-0013-0007	WASHER (AP)	16	16	16	
-82	8	404656-33	SEAL, Pressure-actuated	1	1		
-82	8	459762 (a)	SEAL, Pressure-actuated, cryogenic			1	
-83	8	404656-29	SEAL, Pressure-actuated	1	1		
-83	8	459764-5 (a)	SEAL, Pressure-actuated, cryogenic			1	
-84	6	RD273-1020-1002	PLUG AND BLEEDER	1	1		
-85	6	RD261-6001-0001	GASKET	1	1		
-86	6	RD265-3009-0002	PLUG	1	1		
-87	6	404659	SEAL, Pressure-actuated	1	1		UN
-87	6	408767 (a)	SEAL, Pressure-actuated, cryogenic			1	JYA
-88	6	553373-11	VALVE ASSY, Check, 3/8 IN. vent port (Installed on engines incorporating ECP J2-607) (May replace 553373 for spares)	1	1	1	
-89	6	MS28778-6	PACKING	1	1	1	
-90	6	557817-11 (a)	VALVE ASSY, Shutoff, pressure-actuated, normally closed (Fast shutdown) (May replace 556936 or 557817 for spares) (See figure 12 for breakdown)	1	1		HNB
-90	6	558127-11 (a)	VALVE ASSY, Shutoff, pressure-actuated, normally closed (Fast shutdown) (May replace 558127 for spares) (See figure 12 for breakdown)	1	1		HNA
		RD111-4008-6718	BOLT (AP)	4	4	4	
-91	6	404666	SEAL, Pressure-actuated, spacer type, square flange	1	1	1	
-92	6	557419	BRACKET, Rapid vent valve, gas generator	1	1	1	
		RD111-4011-3413	BOLT (AP)	4	4	4	
		LD153-0013-0002	WASHER (AP)	4	4	4	
-93	6	557429	SPACER, Bracket, rapid vent valve	4	4	4	
-94	6	RD111-4008-6718	BOLT (AP for discharge duct)	6	6	6	
-94	6	RD111-4008-6718	BOLT (AP for discharge duct)	2	2		
-94	6	RD111-4008-6718	BOLT (AP for discharge duct) (Engines J-2131 THRU J-2139)			2	
-95	6	RD111-4008-6712	BOLT (AP for discharge duct)	8	8	8	
-95	6	RD111-4008-6712	BOLT (AP for discharge duct) (Engines J-2140 and SUBS)			2	
-96	6	LD153-0013-0005	WASHER (AP for discharge duct)	12	12	12	
-97	6	404656-7	SEAL, Pressure-actuated	1	1		
-97	6	459719 (a)	SEAL, Pressure-actuated, cryogenic			1	
-98	14	RD273-1020-1002	PLUG AND BLEEDER	1	1	1	
-99	14	RD261-6001-0001	GASKET	1	1	1	
-100	14	RD265-3009-0001	PLUG	1	1	1	
-101	14	406346	SEAL, Pressure-actuated, hot-gas	1	1	1	
-101	14	408799 (a)	SEAL, Pressure-actuated, hot-gas			1	UN
-102	18	RD111-4010-4018	BOLT	5	5	5	JYA
-103	18	407588	WASHER, Bipod to thrust chamber, outer	5	5	5	
-104	18	407587	WASHER, Bipod to thrust chamber, inner	5	5	5	

(a) For interchangeability status, refer to the Component Interchangeability List.

Propellant Feed System

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2-46 Change No. 3—4 February 1972

FIG. & INDEX NO	ZONE NO	PART NUMBER	DESCRIPTION	UNITS PER ASSY			USABLE ON CODE
			1 2 3 4 5 6 7				
14-188	14,15	RD273-1020-1002	PLUG AND BLEEDER	3	3		
-189	14,15	RD261-6001-0001	GASKET	3	3		
-190	15	704341	ADAPTER, GG1A instrumentation port	1	1		
-191	15	703966	ADAPTER, Flight instrumentation port	1	1		
-192	15	408348	SEAL, Pressure-actuated, hot-gas	2			
-192	15	408799	SEAL, Pressure-actuated, hot-gas		2		
-192A	15	RD273-1020-1002	PLUG AND BLEEDER (May be used for spares on engines J-2140 THRU J-2152)		2		
-192B	15	RD261-6001-0001	GASKET (May be used for spares on engines J-2140 THRU J-2152)		2		
-192C	15	RD265-3009-0002	PLUG (May be used for spares on engines J-2140 THRU J-2152)		2		
-193	7	702547	ADAPTER, Flight instrumentation, boss to tube	1	1		
-194	7	404659	SEAL, Pressure-actuated	1			
-194	7	408767	SEAL, Pressure-actuated, cryogenic		1		
-195	14	460390-201	TURBOPUMP ASSY, Fuel (See figure 18 for breakdown)	NP			FXB
-195	14	460390-191	TURBOPUMP ASSY, Fuel (See figure 18 for breakdown)	NP			ERB
-195	14	460160-51	TURBOPUMP ASSY, Fuel (May replace 460160 basic, -11, -31, -41, 460390-131, -151, -161, -171, or -181 for spares) (NHA 406651, 410374, -11, or -21) (See figure 18 for breakdown)	1	1		EUB
-195	14	460390-151	TURBOPUMP ASSY, Fuel (May replace 460160 basic, -11, -31, -41, -51, 460390-131, -161, -171, or -181 for spares) (NHA 406651) (See figure 18 for breakdown)	1	1		EUB
-195	14	460390-181	TURBOPUMP ASSY, Fuel (May replace 460160 basic, -11, -31, -41, -51, 460390-131, -151, -161, or -171 for spares) (NHA 406651) (See figure 18 for breakdown)	1	1		EUB
-195	14	460160-61	TURBOPUMP ASSY, Fuel (NHA 410374-51) (See figure 18 for breakdown)		1		JWD
-195	14	460160-71	TURBOPUMP ASSY, Fuel (May replace 460160-61 on engines J-2140 THRU J-2146 for spares) (NHA 410374-51 or 410374-71) (See figure 18 for breakdown)		1		PZA
-196 THRU		DELETED					
-220	1	405018	PIN, LOX pump attach	1	1	1	
-221	1	MS24665-380	PIN (AP)	1	1	1	
-222	1	406652-1	MOUNT ASSY, LOX pump bipod	1			CF
-223	1	406652-11	MOUNT ASSY, LOX pump bipod	1	1	1	ERA
-223	1	KWB20-10	BEARING (MFD by 97613) (Alternate AW20-5SP10 MFD by 11825)	1			CF
-224	18	RE131-5001-0011	BEARING	1	1	1	ERA
-225	18	405018	FITTING, LOX pump to bipod	1	1	1	
-226	18	RD111-1009-3717	BOLT (AP)	4	4	4	
-227	18	LD153-0013-0005	WASHER (AP)	4	4	4	
-228	18	58FT820	NUT (MFD by 56878) (AP)	1	1	1	
-228	18	406903	BRACKET, Bleed line, LOX, mount pin lock	1	1	1	
-229	18	406652-2	MOUNT ASSY, LOX pump bipod	1			CF
-229	18	406652-12	MOUNT ASSY, LOX pump bipod	1	1	1	ERA
-229	18	KWB20-10	BEARING (MFD by 97613) (Alternate AW20-5SP10 MFD by 11825)	1			CF
-230	18	RE131-5001-0011	BEARING	1	1	1	ERA
-231	18	405018	FITTING, Mount, center LOX pump	1	1	1	
-232	18	RD111-1009-3717	BOLT (AP)	4	4	4	
-233	18	LD153-0013-0005	WASHER (AP)	4	4	4	
-233	9	408290	DUCT ASSY, Inlet, oxidizer	1			LD
-233	9	409899	DUCT ASSY, Inlet, oxidizer (May replace 408290 on engine J-2046 for spares)	1	1	1	
-233A	9	RD111-1009-3516	BOLT (AP)	31	31	31	
-234	9	RD111-1009-3520	BOLT (AP)	2	2	2	
-235	9	RD111-1009-3519	BOLT (AP)	3	3	3	
-235	9	LD153-0013-0003	WASHER (AP)	36	36	36	
-235	9	RD153-1002-0005	WASHER (AP)	6	6	6	
-235A	2	NAS1407N9M10	PIN	24	24	24	
-235B	2	409313	WASHER, Cup	24	24	24	
-236	9	704200	MOUNT, Accelerometer, LOX pump	2	2	2	
-237	9	303287	BRACKET, Oxidizer bleed line	1	1	1	
-238	9	404656-19	SEAL, Pressure-actuated	1	1		
-238	9	410863	SEAL, Pressure-actuated, cryogenic			1	
-239	4	704341	ADAPTER, GG1A, instrumentation port	1	1		
-240	4	404659	SEAL, Pressure-actuated	1			
-240	4	408767	SEAL, Pressure-actuated, cryogenic			1	
-241	4,9,12	RD273-1020-1002	PLUG AND BLEEDER	2	2		
-242	4,9,12	RD261-6001-0001	GASKET	2	2		
-243	4	556446	VALVE ASSY, Check, heat exchanger anti-flood (Welded) (NHA 406651 or 410375)	1	1		BJB
-243	4	557980	VALVE ASSY, Check, heat exchanger anti-flood (Welded) (May replace 556446 or 558103-11 for spares) (NHA 406651, 410375-11 or subsequent - numbers THRU -121)	1	1	1	

(a) For interchangeability status, refer to the Component Interchangeability List.

Section II
Propellant Feed System

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FIG & INDEX NO	ZONE NO	PART NUMBER	DESCRIPTION	UNITS PER ASSY			USABLE ON CODE
				1	2	3	
14-243	4	558103-11	VALVE ASSY, Check, heat exchanger anti-flood (Welded) (Consists of 557980, 407593, 407624, and RD273-1023-5006 May replace 557980 for spares)	1	1	1	
		RD111-3008-3518	BOLT (AP)	8	8	8	
		RD153-5002-0005	WASHER (AP)	8	8	8	
-244	4	303856	SEAL, Pressure-actuated, cryogenic	1	1	1	
-244	4	459763-5 (a)	SEAL, Pressure-actuated, cryogenic				
-245	4	404673-23	SEAL, Pressure-actuated, cryogenic	1	1	1	
-245	4	410886 (a)	SEAL, Pressure-actuated, cryogenic				
-246	1	RD111-1009-3420	BOLT	4	4	4	
-247	1	LD153-0013-0002	WASHER	4	4	4	
-248	4	NAS879C3W	NUT (Engines incorporating MD177, MD335, or MD363 change)	1	1	1	GJB/NYB QCB
-248A	4	RD114-1008-1001	NUT (Engines incorporating MD373, MD374, or MD375 change)	1	1	1	QNB/QPB QCB
-249	4	308841	PLATE, Retainer (Engines incorporating MD177 change)	1	1	1	GJB
-249A	1,4	NA5-28211	FILTER, Heat exchanger (MFD by 21550) (Replaces 308841) (NHA 410375-101) (Engines incorporating MD335 or MD363 change)	1	1	1	NYB/QCB
-249B	4	308841-3	PLATE, Retainer (Replaces NA5-28211) (Engines incorporating . . . MD373, MD374, or MD375 change)	1	1	1	QNB/QPB QCB
-249C	4	NA5-260338T1	FILTER, Heat exchanger (MFD by 21550) (Engines incorporating . . . MD373, MD374, or MD375 change)	1	1	1	QNB/QPB QCB
-250	3,4	308840	PLATE, Orifice, LOX inlet (Coils 2, 3, and 4) (Engines incorporating MD177 or MD375 change)	3	3	3	GJB/QCB
-251	3,4	RD251-4105-0184	ORIFICE PLATE, LOX inlet (Coil 1) (Engines incorporating MD177, MD335, or MD375 change)	1	1	1	GJB/NYB QCB
-251A	3,4	308840	PLATE, Orifice, LOX inlet (Coils 1 and 4) (Engines incorporating . . . MD363, MD373, or MD374 change)	2	2	2	QCB/QNB QCB
-251B	4	RD251-4105-0109	ORIFICE PLATE, LOX inlet (Coils 2 and 3) (Engines incorporating MD363, MD373, or MD374 change)	2	2	2	QCB/QNB QPB
-252	9,12	702528	ADAPTER, Flight instrumentation, boss to tube	2	2	2	
-253	9	404659	SEAL, Pressure-actuated	2	2	2	
-253	9	408767 (a)	SEAL, Pressure-actuated, cryogenic				
-254	9	702547	ADAPTER, Flight instrumentation, boss to tube	1	1	1	FFB
-255	9	404659	SEAL, Pressure-actuated	1	1	1	FFB
-255	9	408767 (a)	SEAL, Pressure-actuated, cryogenic				
-255A	9	RD273-1020-1002	PLUG AND BLEEDER	1	1	1	FFC
-255B	9	RD261-6001-0001	GASKET	1	1	1	FFC
-255C	9	RD265-3009-0002	PLUG	1	1	1	FFC
-255D	9	404659	SEAL, Pressure-actuated	1	1	1	FFC
-255D	9	408767 (a)	SEAL, Pressure-actuated, cryogenic	1	1	1	FFC
-256	9	702547	ADAPTER, Flight instrumentation, boss to tube	1	1	1	
-257	9	406346	SEAL, Pressure-actuated, hot-gas	1	1	1	
-257	9	408799 (a)	SEAL, Pressure-actuated, hot-gas				
-258	12	251351-131 (a)	VALVE ASSY, Propellant utilization (May replace 251351-61, ... -71, -81, -91, -101, -111, -121, -141, or -151 for spares) (Installed on engines not incorporating MD366 or MD371 change) (See figure 17 for breakdown)	1	1	1	
-258A	13	309415-211	VALVE ASSY, Mixture ratio control (Installed on engines incorporating MD385 change) (See figure 17A for breakdown)	1	1	1	RAB
-258A	13	309415-201	VALVE ASSY, Mixture ratio control (Installed on engines incorporating MD366 or MD371 change) (See figure 17A for breakdown)				QEB
-258	12	251351-141 (a)	VALVE ASSY, Propellant utilization (May replace 251351-61, ... -71, -81, -91, -101, -111, -121, -141, or -151 for spares) (Installed on engines not incorporating MD366 or MD371 change) (See figure 17 for breakdown)	1	1	1	VBM
-258A	13,23	309415-191	VALVE ASSY, Mixture ratio control (Installed on engines incorporating MD366 or MD371 change) (See figure 17A for breakdown)				QEC
		LD153-0013-0002	WASHER (AP)	24	24	24	
		NAS879C4W	NUT (AP)	24	24	24	
-259	9,12	404656-55	SEAL, Pressure-actuated	2	2	2	
-259	9,12	459760-5 (a)	SEAL, Pressure-actuated, cryogenic				
-260	9	502833-23	BRACKET, Harness support (Installed on engines not incorporating MD366 or MD371 change)	1	1	1	
-261	9	502827	BRACKET, Harness support, propellant utilization valve	1	1	1	
-262	12	458175-81 (a)	TURBOPUMP ASSY, Oxidizer (May replace 458175-71, -111, ... -151, and -171 for spares) (NHA 406651, 410375, or 410375-11) (See figure 20 for breakdown)	1	1	1	EZC
-262	12	458175-111 (a)	TURBOPUMP ASSY, Oxidizer (May replace 458175-71, -81, ... -151, and -171 for spares) (NHA 410375-21) (See figure 20 for breakdown)	1	1	1	JRB
(a) For interchangeability status, refer to the Component Interchangeability List.							

FIG & INDEX NO	ZONE NO	PART NUMBER	DESCRIPTION							UNITS PER ASSY			USABLE ON CODE		
			1	2	3	4	5	6	7						
14-262	12	458175-151	(a)	.	TURBOPUMP ASSY, Oxidizer (May replace 458175-71, -81, ... and -171 for spares) (NHA 410375-41, -71, -81, -91, or -121) (See figure 20 for breakdown)							1	1	MXC	
-262	12	458175-161	(a)	.	TURBOPUMP ASSY, Oxidizer (NHA 410375-51, -101, or -111) . . . (See figure 20 for breakdown)								1	JWE	
-262	12	458175-221	(a)	.	TURBOPUMP ASSY, Oxidizer (Field configuration for 458175-81 incorporating MD377, MD378, or MD379 change) (See figure 20 for breakdown)							1	1	QSB,QTB	
-262	12	458175-231	(a)	.	TURBOPUMP ASSY, Oxidizer (Field configuration for 458175-111 incorporating MD377, MD378, or MD379 change) (See figure 20 for breakdown)								1	QUB	
-262	12	458175-241	(a)	.	TURBOPUMP ASSY, Oxidizer (Field configuration for 458175-151 incorporating MD377, MD378, or MD379 change) (See figure 20 for breakdown)								1	1	QUB
-262	12	458175-251	(a)	.	TURBOPUMP ASSY, Oxidizer (Field configuration for 458175-161 incorporating MD377, MD378, or MD379 change) (See figure 20 for breakdown)								1	QUB	
-262	12	458175-301		.	TURBOPUMP ASSY, Oxidizer (Field configuration for 458175-71 . . incorporating MD378 change) (See figure 20 for breakdown)							1		QTB	
-263 THRU		DELETED													
-275	11,12	RD273-1020-1002		.	PLUG AND BLEEDER							3	3	3	
-276	11,12	RD261-6001-0001		.	GASKET.							3	3	3	
-277	11,12	RD265-3009-0002		.	PLUG							1	1	1	
-278	11														
PARTS LIST CONTINUED ON SUCCEEDING PAGES															
(a) For interchangeability status, refer to the Component Interchangeability List.															

FIG. & INDEX NO	ZONE NO	PART NUMBER	DESCRIPTION							UNITS PER ASSY	USABLE ON CODE
			1	2	3	4	5	6	7		
14-279	11	404659	SEAL, Pressure-actuated							1	1
-279	11	408767 (a)	SEAL, Pressure-actuated, cryogenic								1
-280	11	NA5-27215T5	TRANSDUCER, Temperature, resistance type (Oxidizer bleed valve oxidizer temperature transducer) (Tap GOT2) (J159)							1	1
		RD111-1009-3412	BOLT (AP)							4	4
		RD153-5003-0004	WASHER (AP)							4	4
		RD191-4002-1005	LUG (AP)							1	1
-280A	12	RD421-5001-0016	INSULATOR (NHA 103850)							6	6
-281	11	404666-7	SEAL, Pressure-actuated, spacer type, square flange							1	1
-281	11	459765 (a)	SEAL, Pressure-actuated, cryogenic								1
-282	11	502835	BRACKET, Harness support, LOX and fuel bleed valves							1	1
-283	11	309029 (a)	VALVE ASSY, Oxidizer bleed (Welded) (May replace 309031 or 309029-11 for spares) (NHA 410373 basic, -11, or -21) (J132)							1	1
		RD111-4010-3519	BOLT (AP)							8	8
		RD153-5002-0005	WASHER (AP)							8	8
-283A	12	RD421-5001-0016	INSULATOR (NHA 103850)							2	2
-284	11	404700-5	SEAL, Pressure-actuated, LOX service							1	1
-284	11	459761 (a)	SEAL, Pressure-actuated, cryogenic								1
-285	11	NA5-27215T5	TRANSDUCER, Temperature, resistance type (LOX) pump discharge) (Tap POT3) (J125)							1	1
		RD111-1009-3411	BOLT (AP)							4	4
		LD153-0013-0002	WASHER (AP)							4	4
		RD191-4002-0005	LUG (AP)							1	1
-285A	12	RD421-5001-0016	INSULATOR (NHA 103850)							6	6
-286	11	404666-7	SEAL, Pressure-actuated, spacer type, square flange							1	1
-286	11	459724 (a)	SEAL, Pressure-actuated, cryogenic								1
-287	11	RD273-1020-1002	PLUG AND BLEEDER							2	2
-288	11	RD261-6001-0001	GASKET							2	2
-289	11	408723	COVER, Mounting flange, pressure actuated sequence control valve							1	1
		RD111-1009-3412	BOLT (AP)							6	6
		LD153-0013-0002	WASHER (AP)							6	6
-290	11	404657-5	SEAL, Pressure-actuated							1	1
-290	11	410871 (a)	SEAL, Pressure-actuated, cryogenic								1
-291	11	NA5-27331	MAGNETIC PICKUP, J-2 flight flowmeters, dual coil (Oxidizer flowmeter) (NHA 410373 and all dash numbers) (On engines not incorporating MD150, MD280, MD281, or MD364 change) (Tap POFA) (J111a)							1	1
-291	11	704364	MAGNETIC PICKUP ASSY, Flowmeter dual coil (Oxidizer flowmeter) (NHA 410373 and all dash numbers) (Tap POFA) (J111a)							1	1
		RD111-1009-3411	BOLT (AP)							2	2
		LD153-0013-0002	WASHER (AP)							2	2
-291A	12	RD421-5001-0016	INSULATOR (NHA 103850)							4	4
-291B	11	704629-3	TAG, Identification, wraparound							1	1
-292	11	502833-25	BRACKET, Harness support							1	1
-293	11	RD191-4002-1005	LUG							2	2
-294	10	405633-3	TIE ROD, Propellant feed							3	3
-295	10	405013	WASHER, Bipod to thrust chamber, outer (AP)							2	2
-296	10	405645	WASHER, Spherical, tie rod (AP)							2	2
-297	10	RD114-1002-0008	NUT (AP)							2	2
-298	11	408712	DUCT ASSY, Inlet, thrust chamber oxidizer (Welded)							1	1
-299	10	RD111-4009-6718	BOLT (AP)							2	2
-299A	10	RD111-4009-6716	BOLT (AP)							14	14
-300	10	LD153-0013-0005	WASHER (AP)							16	16
-301	10	RD114-8005-2007	NUT (AP)							16	16
		RD172-0014-0027	TAPE (LIQUID OXYGEN)							AR	AR
		RD172-0001-0001	TAPE (ROCKET OXIDIZER)							AR	AR
-302	10	404656-7	SEAL, Pressure-actuated							1	1
-302	10	459719 (a)	SEAL, Pressure-actuated, cryogenic								1
-303	10	502834	BRACKET, Harness support, LOX high pressure duct							1	1
-304	10	251216	FLOWMETER ASSY, Liquid oxygen							1	1
-305	10	251218	STRAIGHTENER ASSY, Flow, upstream (Oxidizer flow straightener)							1	1
-306	11	702547	ADAPTER, Flight instrumentation, boss to tube							1	1
-307	12	404659	SEAL, Pressure-actuated							1	1
-307	11	408767 (a)	SEAL, Pressure-actuated, cryogenic								1
-308	11	RD273-1020-1002	PLUG AND BLEEDER							3	3
-309	11	RD261-6001-0001	GASKET							3	3
-310	11	406919	DUCT ASSY, Discharge, pump oxidizer (Oxidizer turbopump discharge duct) (Welded)							1	1
		RD172-0018-1250	TAPE (1250 PSI)							AR	AR
		RD172-0001-0001	TAPE (ROCKET OXIDIZER)							AR	AR
-311 THRU -325		DELETED									
-326	5	NA5-27215T5	TRANSDUCER, Temperature, resistance type (Fuel bleed valve) (Tap GFT1) (J158)							1	1
		RD111-1109-3412	BOLT (AP)							4	4
		LD153-0013-0002	WASHER (AP)							4	4
		RD191-4002-1005	LUG (AP)							1	1

(a) For interchangeability status, refer to the Component Interchangeability List.

Section II
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FIG. & INDEX NO	ZONE NO	PART NUMBER	DESCRIPTION							UNITS PER ASSY		USABLE ON CODE
			1	2	3	4	5	6	7			
14-326A	12	RD421-5001-0016	.	.	.	.	.	.	.	6	6	
-327	5	404666-7	.	.	.	.	.	.	.	1	1	
-327	5	459724 (a)	.	.	.	.	.	.	.		1	
-328	5	502833-13	.	.	.	.	.	.	.	1	1	
-329	5	502835	.	.	.	.	.	.	.	1	1	
-330	7	RD273-1020-1002	.	.	.	.	.	.	.	1	1	
-331	7	RD261-6001-0001	.	.	.	.	.	.	.	1	1	
-332	7	RD273-1020-1002	.	.	.	.	.	.	.	1	1	
-333	7	RD261-6001-0001	.	.	.	.	.	.	.	1	1	
-334	7	RD265-3009-0002	.	.	.	.	.	.	.	1	1	
-335	7	404659	.	.	.	.	.	.	.	1	1	
-335	7	408767 (a)	.	.	.	.	.	.	.		1	
-336	5	309034 (a)	.	.	.	.	.	.	.	1	1	
-336A	12	RD421-5001-0016	.	.	.	.	.	.	.	2	2	
-337	5	404700-5	.	.	.	.	.	.	.	2	2	
-337	5	459761 (a)	.	.	.	.	.	.	.		2	
-338	5	RD273-1020-1002	.	.	.	.	.	.	.	1	1	
-339	5	RD261-6001-0001	.	.	.	.	.	.	.	1	1	
-340	5	407620	.	.	.	.	.	.	.	1	1	
		RD111-4010-3518	.	.	.	.	.	.	.	16	16	
		RD153-5002-0005	.	.	.	.	.	.	.	16	16	
-341	6	RD273-1020-1002	.	.	.	.	.	.	.	2	2	
-342	6	RD261-6001-0001	.	.	.	.	.	.	.	2	2	
-343	6	702528	.	.	.	.	.	.	.	1	1	
-344	6	404659	.	.	.	.	.	.	.	1	1	
-344	6	408767 (a)	.	.	.	.	.	.	.		1	
-345	5	405633-5	.	.	.	.	.	.	.	3	3	
-346	8	405013	.	.	.	.	.	.	.	2	2	
-347	8	405645	.	.	.	.	.	.	.	2	2	
-348	8	RD114-1002-0008	.	.	.	.	.	.	.	2	2	
-349	6	407604	.	.	.	.	.	.	.	1	1	
		RD111-4009-6716	.	.	.	.	.	.	.	16	16	
		LD153-0013-0005	.	.	.	.	.	.	.	16	16	
		RD114-8005-2007	.	.	.	.	.	.	.	16	16	
-350	8	404656-7	.	.	.	.	.	.	.	1	1	
-350	8	459719 (a)	.	.	.	.	.	.	.		1	
-351	5	502840	.	.	.	.	.	.	.	1	1	
-352	8	251225	.	.	.	.	.	.	.	1	1	
-353	5	251218	.	.	.	.	.	.	.	1	1	
-354	5	NA5-27331	.	.	.	.	.	.	.	1	1	
-354	5	704634	.	.	.	.	.	.	.	1	1	QDB
		RD111-1009-3411	.	.	.	.	.	.	.	2	2	
		LD153-0013-0002	.	.	.	.	.	.	.	2	2	
		RD191-4002-1005	.	.	.	.	.	.	.	1	1	
-354A	12	RD421-5001-0016	.	.	.	.	.	.	.	4	4	
-354B	5	704623-3	.	.	.	.	.	.	.	1	1	QDB
-355	8	RD273-1020-1002	.	.	.	.	.	.	.	1	1	
-356	8	RD261-6001-0001	.	.	.	.	.	.	.	1	1	
-357	5	NA5-27215T5	.	.	.	.	.	.	.	1	1	
-357A	5	RD111-1009-3411	.	.	.	.	.	.	.	3	3	
-357B	5	RD111-1011-0414	.	.	.	.	.	.	.	1	1	
		LD153-0013-0002	.	.	.	.	.	.	.	4	4	
		RD191-4002-1005	.	.	.	.	.	.	.	1	1	
-357C	12	RD421-5001-0016	.	.	.	.	.	.	.	6	6	
-358	5	404666-7	.	.	.	.	.	.	.	1	1	
-358	5	459724 (a)	.	.	.	.	.	.	.		1	
-359	5	MS9102-51	.	.	.	.	.	.	.	1	1	
-360	5	408714	.	.	.	.	.	.	.	1	1	
-360A	16	RD273-1023-6006	.	.	.	.	.	.	.	1	1	
-360B	16	409813	.	.	.	.	.	.	.	1	1	
		RD172-0014-0040	.	.	.	.	.	.	.	AR	AR	
		RD172-0014-0027	.	.	.	.	.	.	.	AR	AR	
		RD172-0018-0025	.	.	.	.	.	.	.	AR	AR	
-360C	16	AN818-16K	.	.	.	.	.	.	.	1	1	
-360D	16	652038	.	.	.	.	.	.	.	1	1	
-360E	16	AN815-16J	.	.	.	.	.	.	.	1	1	

(a) For interchangeability status, refer to the Component Interchangeability List.

FIG & INDEX NO	ZONE NO	PART NUMBER	DESCRIPTION	UNITS PER ASSY			USABLE ON CODE
				1	2	3	
14-360F	16	409184	LINE ASSY, Drain, primary seal, oxidizer pump (Welded) (See ECP J2-620 MD322 or MD323 change)	1	1	1	
		RD111-1010-3308	BOLT (AP)	2	2	2	
		LD153-0013-0001	WASHER (AP)	2	2	2	
		LD153-0010-0008	WASHER (AP)	2	2	2	
		NAS679C3W	NUT (AP)	2	2	2	
		RD172-0014-0040	TAPE (DRAIN)	AR	AR	AR	
		RD172-0014-0027	TAPE (LIQUID OXYGEN)	AR	AR	AR	
		RD172-0018-0025	TAPE (25 PSI)	AR	AR	AR	
-360G	13	406369	TEE, 5/8 IN. by 5/8 IN. by 1/2 IN.	1	1	1	
-361	16	409823	SUPPORT, Drain lines, oxidizer systems			1	NLA
-362	16	409184	LINE ASSY, Drain, primary seal, oxidizer pump (Welded)			1	NLA
		RD111-1010-3308	BOLT (AP)			2	
		LD153-0013-0001	WASHER (AP)			2	
		LD153-0010-0008	WASHER (AP)			2	
		NAS679C3W	NUT (AP)			2	
		RD172-0014-0040	TAPE (DRAIN)			AR	
		RD172-0014-0027	TAPE (LIQUID OXYGEN)			AR	
		RD172-0018-0025	TAPE (25 PSI)			AR	
-363	16	AN815-16J	UNION (Supersedes AN815-16C)			1	NLA
-364	13	411527	TUBE ASSY, Drain, primary seal, liquid oxygen pump (Welded)			1	NLA
		RD172-0014-0040	TAPE (DRAIN)			AR	
		RD172-0014-0027	TAPE (LIQUID OXYGEN)			AR	
		RD172-0018-0025	TAPE (25 PSI)			AR	
-365	13	411526	TUBE ASSY, Drain, primary seal, liquid oxygen pump (Welded)			1	NLA
		RD172-0014-0040	TAPE (DRAIN)			AR	
		RD172-0014-0027	TAPE (LIQUID OXYGEN)			AR	
		RD172-0018-0025	TAPE (25 PSI)			AR	
-366	19,20	RD273-1020-1002	PLUG AND BLEEDER	2	2	2	
-367	19,20	RD261-6001-0001	GASKET	2	2	2	
-368	19	404673-23	SEAL, Pressure-actuated, cryogenic (See index 245)	REF	REF	REF	
-368	19	410886 (a)	SEAL, Pressure-actuated, cryogenic (See index 245)	REF	REF	REF	
-369	19	307561	SUPPORT ASSY, Heat exchanger by-pass line (Welded)	1	1	1	
-370	19	105802	LINE ASSY, Helium heat exchanger inlet (Welded)	1	1	1	D/B
-370	19	105802-11	LINE ASSY, Helium heat exchanger inlet (Welded)	1	1	1	HBB
-371	19	RD111-1010-3528	BOLT (AP)	6	6	6	
-372	19	RD111-1009-3520	BOLT (AP)	2	2	2	
-373	19	RD153-5001-0005	WASHER (AP)	8	8	8	
-374	19	RD114-8005-2005	NUT (AP)	8	8	8	
		RD172-0007-0001	TAPE (COMPRESSED GAS)	AR	AR	AR	
		RD172-0014-0018	TAPE (HELIUM)	AR	AR	AR	
		RD172-0014-0039	TAPE (FLOW)	AR	AR	AR	
		RD172-0018-0850	TAPE (850 PSI)	AR	AR	AR	
-375	19	404673-5	SEAL, Pressure-actuated, cryogenic	1	1	1	
-376	20	404631	PLUG, Leak tap port	1	1	1	
-377	20	407585	COVER, LOX duct heat exchanger port	1	1	1	
		RD111-1009-3416	BOLT (AP)	8	8	8	
		RD153-5001-0004	WASHER (AP)	8	8	8	
-378	20	404673-7	SEAL, Pressure-actuated, cryogenic	1	1	1	
		703570	CAP, 1/4 IN. OD by 0.028 gage tube	1	1	1	
-378A	15	704193	TUBE ASSY, Gas generator LOX injection pressure, GO5 port to purge tee, flight instrumentation (See figure 31, index 77, for REQMT)	REF	REF	REF	
-378B	15	703876	TUBE ASSY, Gas generator chamber pressure, CG1 flight instrumentation (See figure 32, index 45, for REQMT)	REF	REF	REF	
-378C	15	704327	TUBE ASSY, Stage instrumentation, GG1a (Welded) (See figure 30, . . . index 7, for REQMT)	REF	REF	REF	
-378C	15	703673	TUBE ASSY, Stage instrumentation, GG1a (Welded) (See figure 30, . . index 7, for REQMTS)	REF	REF	REF	
-378D	14	704176	TUBE ASSY, Upstream flight instrumentation, GF4 (See figure 31, . . index 68, for REQMTS)	REF	REF	REF	
-378D	14	703725	TUBE ASSY, Downstream stage instrumentation GF4 (See figure 31, . . index 68, for REQMT)	REF	REF	REF	
-379	17	410374	FUEL TURBOPUMP GROUP ASSY		1		
-379	17	410374-11	FUEL TURBOPUMP GROUP ASSY		1		
-379	17	410374-21	FUEL TURBOPUMP GROUP ASSY		1		
-379	17	410374-31	FUEL TURBOPUMP GROUP ASSY		1		
-379	17	410374-41	FUEL TURBOPUMP GROUP ASSY			1	
-379	17	410374-51	FUEL TURBOPUMP GROUP ASSY			1	
-379	17	410374-61	FUEL TURBOPUMP GROUP ASSY			1	
-379	17	410374-71	FUEL TURBOPUMP GROUP ASSY			1	
-380	18	410375	OXIDIZER TURBOPUMP GROUP ASSY		1		
-380	18	410375-11	OXIDIZER TURBOPUMP GROUP ASSY		1		
-380	18	410375-21	OXIDIZER TURBOPUMP GROUP ASSY		1		
-380	18	410375-31	OXIDIZER TURBOPUMP GROUP ASSY		1		
-380	18	410375-41	OXIDIZER TURBOPUMP GROUP ASSY			1	
-380	18	410375-51	OXIDIZER TURBOPUMP GROUP ASSY			1	
-380	18	410375-61	OXIDIZER TURBOPUMP GROUP ASSY		1		
(a) For interchangeability status, refer to the Component Interchangeability List.							

(a) For interchangeability status, refer to the Component Interchangeability List.

Propellant Feed System

FIG. & INDEX NO.	ZONE NO	PART NUMBER	DESCRIPTION							UNITS PER ASSY	USABLE ON CODE
			1	2	3	4	5	6	7		
14-380	18	410375-71	.	OXIDIZER TURBOPUMP GROUP ASSY	.	.	.	.	.	1	1
-380	18	410375-81	.	OXIDIZER TURBOPUMP GROUP ASSY	.	.	.	.	.	1	1
-380	18	410375-91	.	OXIDIZER TURBOPUMP GROUP ASSY	.	.	.	.	.	1	1
-380	18	410375-101	.	OXIDIZER TURBOPUMP GROUP ASSY	.	.	.	.	.	1	1
-380	18	410375-111	.	OXIDIZER TURBOPUMP GROUP ASSY	.	.	.	.	.	1	1
-380	18	410375-121	.	OXIDIZER TURBOPUMP GROUP ASSY	.	.	.	.	.	1	1
-381	10	410373	.	OXIDIZER DUCT AND BLEED VALVE GROUP ASSY	.	.	.	.	.	1	1
-381	10	410373-11	.	OXIDIZER DUCT AND BLEED VALVE GROUP ASSY	.	.	.	.	.	1	1
-381	10	410373-21	.	OXIDIZER DUCT AND BLEED VALVE GROUP ASSY	.	.	.	.	.	1	1
-382	7	410372	.	FUEL DUCT AND BLEED VALVE GROUP ASSY	.	.	.	.	.	1	1
-382	7	410372-11	.	FUEL DUCT AND BLEED VALVE GROUP ASSY	.	.	.	.	.	1	1
-382	7	410372-21	.	FUEL DUCT AND BLEED VALVE GROUP ASSY	.	.	.	.	.	1	1
-383	13	703094	.	TUBE ASSY, Flight instrumentation (PO9) (See figure 31, index 54, for REQMT)	.	.	.	.	.	REF	REF
-384	13	703095	.	TUBE ASSY, Flight instrumentation (PO8) (See figure 31, index 53, for REQMT)	.	.	.	.	.	REF	REF
-385	21, 24	702528	.	ADAPTER, Flight instrumentation, boss tube (See figure 31, index 51, for REQMT)	.	.	.	.	.	REF	REF
-386	21, 24	404659	.	SEAL, Pressure-actuated, cryogenic (See figure 31, index 52, for REQMT)	.	.	.	.	.	REF	JP
-386	21, 24	408767 (a)	.	SEAL, Pressure-actuated, cryogenic (See figure 31, index 52, for REQMT)	.	.	.	.	.	REF	JYA
-387	13	RD273-1023-0005	.	SLEEVE (RD273-1029-0002 may be installed)	.	.	.	.	.	2	QED
-388	13	703096	.	TEE, Instrumentation system (Pneumatic inlet control line) (556120 tee may be installed)	.	.	.	.	.	1	QED
		557876-31	.	MANIFOLD ASSY, Intermediate seal, purge (Oxidizer turbopump intermediate seal purge check valve vent line) (Welded) (See figure 4, index 30, for REQMT)	.	.	.	.	.	REF	QED
-389	13	557876-15	.	TUBE, Control line	.	.	.	.	.	1	QED
-390	13	557876-13	.	TUBE, Control line	.	.	.	.	.	1	QED
-391	13	557876-9	.	TUBE, Control line	.	.	.	.	.	1	QED
-392	13	RD127-1001-0002	.	CLAMP	.	.	.	.	.	2	QED
		NAS1101C3-16	.	SCREW (AP)	.	.	.	.	.	1	QED
		LD153-0010-0007	.	WASHER (AP)	.	.	.	.	.	1	QED
		NAS679C3W	.	NUT (AP)	.	.	.	.	.	1	QED
-393	13	RE127-2005-0004	.	CLAMP	.	.	.	.	.	1	QED
		NAS1101C3-8	.	SCREW (AP)	.	.	.	.	.	1	QED
		LD153-0010-0007	.	WASHER (AP)	.	.	.	.	.	1	QED
		NAS679C3W	.	NUT (AP)	.	.	.	.	.	1	QED
-394	13	RE127-2005-0004	.	CLAMP	.	.	.	.	.	1	QED
		NAS1101C3-8	.	SCREW (AP)	.	.	.	.	.	1	QED
		LD153-0010-0007	.	WASHER (AP)	.	.	.	.	.	1	QED
		NAS679C3W	.	NUT (AP)	.	.	.	.	.	1	QED
-395	13	MS9102-03	.	BRACKET	.	.	.	.	.	1	QED
-396	13	RD111-1009-3421	.	BOLT	.	.	.	.	.	4	QED
-397	13	LD153-0013-0002	.	WASHER	.	.	.	.	.	4	QED
-398	13	411502	.	SEAL ASSY, Pressure-actuated, cryogenic	.	.	.	.	.	1	QED
-399	13	RD265-5017-0001	.	CAP	.	.	.	.	.	1	QED
-400	21, 22	502827	.	BRACKET, Harness support, propellant utilization valve (Mixture ratio control valve) (See index 261 for REQMT)	.	.	.	.	.	REF	REF
-401	21, 23	558494	.	BRACKET, Connector mounting, mixture ratio control jumper	.	.	.	.	.	1	QED
-402	21, 22	558495	.	BRACKET, Electrical connector mounting, mixture ratio instrumentation jumper	.	.	.	.	.	1	QED
-403	21, 23	MS9102-61	.	BRACKET	.	.	.	.	.	1	QEC
-404	24	459760-5	.	SEAL, Pressure-actuated, cryogenic	.	.	.	.	.	1	QEC
-405	21	NAS679C4W	.	NUT (AP)	.	.	.	.	.	24	QEC
-406	21	LD153-0013-0002	.	WASHER (AP)	.	.	.	.	.	17	QEC
-407	24	458175	.	TURBOPUMP ASSY, Oxidizer (See index 262 for REQMT)	.	.	.	.	.	REF	REF

(a) For interchangeability status, refer to the Component Interchangeability List.

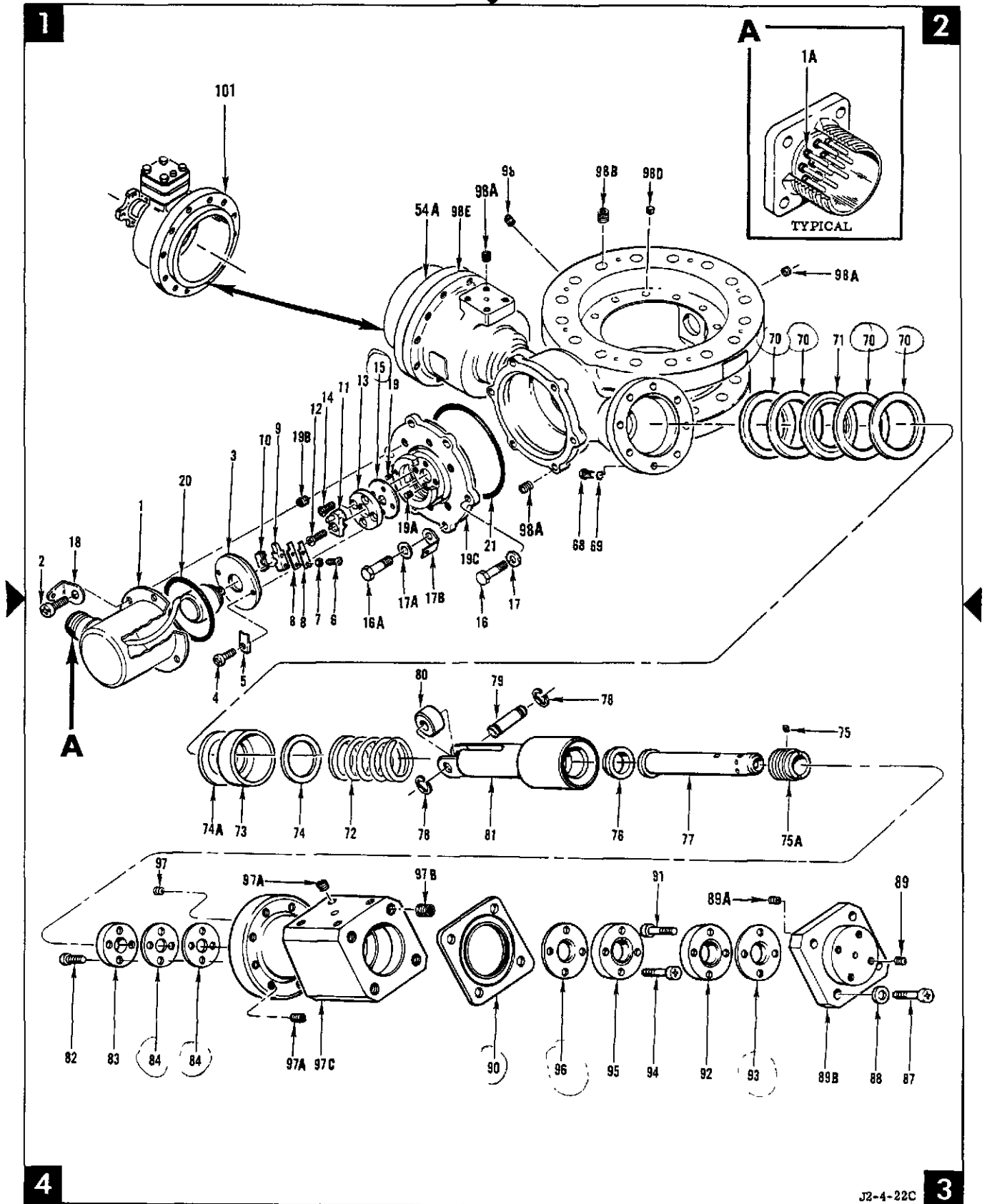


Figure 15. Main Oxidizer Valve Assembly (Sheet 1 of 2)

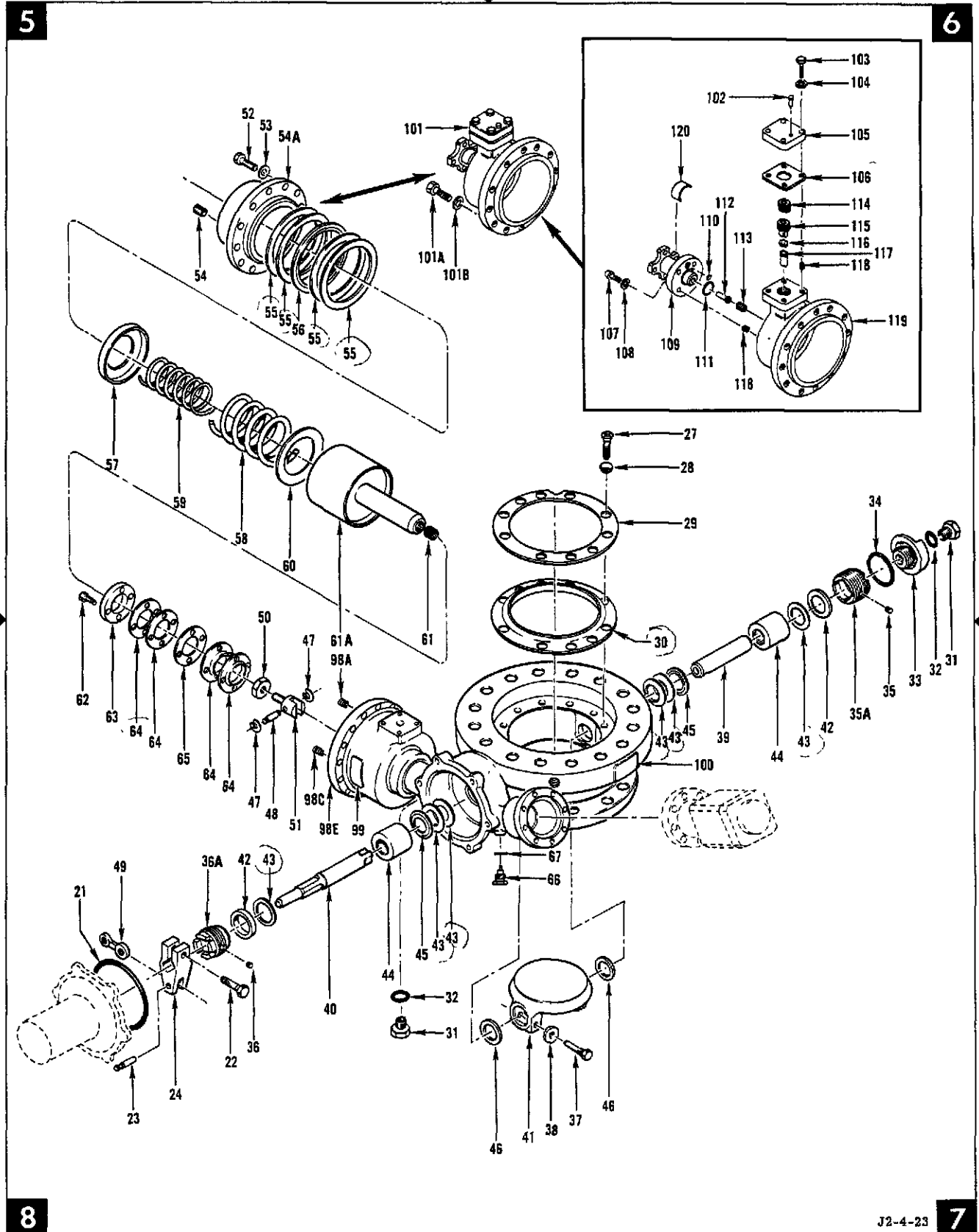


Figure 15. Main Oxidizer Valve Assembly (Sheet 2 of 2)

FIG. & INDEX NO.	ZONE NO	PART NUMBER	DESCRIPTION	UNITS PER ASSY			USABLE ON CODE
			1 2 3 4 5 6 7				
15-		409969 (a)	VALVE ASSY, Main oxidizer (See figure 14, index 62, for REQMT)	REF			
		410431	VALVE ASSY, Main oxidizer (See figure 14, index 62, for REQMT)		REF		
		411031 (a)	VALVE ASSY, Main oxidizer (See figure 14, index 62, for REQMT)			REF	
		411031-11 (a)	VALVE ASSY, Main oxidizer (See figure 14, index 62A, for REQMT)			REF	
- 1	1	405817	INDICATOR ASSY, Position, main propellant valve (Welded) (J115)	1	1	1	
- 1A	2	RD421-5001-0016	INSULATOR (NHA 103850)	7	7	7	
- 2	1	NAS1101C3H8	SCREW (AP)	6	6	6	
- 3	1	405820	BASE, Position indicator, main propellant valve	1	1	1	
- 4	4	NAS1101C06H8	SCREW (AP)	2	2	2	
- 5	4	404580	CLIP, Potentiometer bracket, main propellant valve	2	2	2	
- 6	4	NAS1101-04H10	SCREW	2	2	2	
- 7	4	NAS620-4	WASHER	2	2	2	
- 8	4	250382	SPRING, Transducer arm, 3 IN.	2	2	2	
- 9	1	251251	ARM, Instrument actuation	1	1	1	
-10	1	251252	CLAMP, Instrument actuation arm	1	1	1	
-11	1	404537	ARM ASSY, Actuator position indicator propellant (Brazed)	1	1	1	
-12	1	NAS1189C3T10	SCREW (AP)	1	1	1	
-13	1	405819	RETAINER, Lipseal, main propellant valve	1	1	1	
-14	1	NAS1102-3-8	SCREW (AP)	4	4	4	
-15	1	405818	LIPSEAL, Position indicator, main propellant valve	1	1	1	
-16	4	NAS1004-3H	BOLT	5	5	5	
-16A	1	NAS1004-4H	BOLT	1	1	1	
-17	4	LD153-0013-0002	WASHER	5	5	5	
-17A	1	LD153-0013-0002	WASHER	1	1	1	
-17B	3	502833-17	BRACKET, Harness support	1	1	1	
-18	1	RD191-4002-1004	LUG	1	1	1	
		405816	COVER ASSY, Actuator, main propellant valve	1	1	1	
-19	1	1185-06CNVX207	INSERT (MFD by 91767)	2	2	2	
-19A	1	3591-3CNVX285	INSERT (MFD by 91767)	4	4	4	
-19B	1	1191-3CNVX285	INSERT (MFD by 91767)	6	6	6	
-19C	1	405818-5	COVER, Actuator, main propellant valve	1	1	1	
-20	1	MS29513-147	PACKING	1	1	1	
-21	1,8	MS29513-239	PACKING	1	1	1	
-22	8	NAS1005-6H	BOLT	1	1	1	
-23	8	404568	PIN, Lever, main propellant valve	1	1	1	
-24	8	408457	LEVER, Main propellant valve	1	1	1	
-25		DELETED					
-26		DELETED					
-27	6	NAS1102C4-12	SCREW	10	10	10	
-28	6	404544	SPACER, Thermal, main propellant valve	10	10	10	
-29	6	407434	RETAINER, Gate seal, main propellant valve	1	1	1	
-30	6	407089	SEAL, Gate, main propellant valve	1	1	1	
-31	7,8	553364	VALVE ASSY, Relief, low temperature, 1/4 IN. vent (Alternate 553364-21)	2	2	2	
-32	7,8	MS29512-04	PACKING	2	2	2	
-33	7	405801	CAP, Main propellant valve	1	1	1	
-34	6	MS29513-133	PACKING	1	1	1	
		405803	RETAINER ASSY, Idler, shaft seal, main propellant valve	1	1	1	
-35	7	No Number	PELLET, 1/8 IN. DIA (MFD by 07368)	1	1	1	
-35A	7	405804	RETAINER, Idler, shaft seal, main propellant valve	1	1	1	
		405812	RETAINER ASSY, Drive shaft seal, main propellant valve	1	1	1	
-36	8	No Number	PELLET, 1/8 IN. DIA (MFD by 07368)	1	1	1	
-36A	8	405813	RETAINER, Drive shaft, seal, main propellant valve	1	1	1	
-37	7	404543	BOLT, Gate, main propellant valve (Alternate 404543-3)	2	2	2	
-38	7	RD153-3002-0003	WASHER	2	2	2	
-39	7	405810	SHAFT, Gate idler, main propellant valve	1	1	1	
-40	8	405811	SHAFT, Gate drive, main propellant valve	1	1	1	
-41	7	405809	GATE, Main oxidizer valve	1	1	1	
-42	7,8	405805	WASHER, Spherical, main propellant valve	2	2	2	
-43	7,8	404561	SEAL, Lip, propellant valve	6	6	6	
-44	7,8	AG33411	BEARING (MFD by 60380)	2	2	2	
-45	7,8	404560	WASHER, Propellant valve, shaft seal	2	2	2	
-46	7	404562-3	SPACER, Main propellant valve (Use as required at time of assembly)	2	2	2	
-46	7	404562-5	SPACER, Main propellant valve (Use as required at time of assembly)	2	2	2	
-47	8	MS16633-4031	RING	2	2	2	
-48	8	404569	PIN, Link, main propellant valve	1	1	1	
-49	8	406715	LINK, Main propellant valve	1	1	1	
-50	5	AN316C7R	NUT	1	1	1	
-51	8	405689	CLEVIS, Main propellant valve	1	1	1	
		405830	CAP ASSY, Cylinder, main oxidizer valve	1			
-52	5	RD111-4008-6408	BOLT (AP)	12			
			(a) For interchangeability status, refer to the Component Interchangeability List.				

Propellant Feed System

FIG & INDEX NO.	ZONE NO	PART NUMBER	DESCRIPTION	UNITS PER ASSY			USABLE ON CODE
			1 2 3 4 5 6 7				
15-53	5	RD153-5002-0004	WASHER (AP)	12			
-54	5	1191-4CNVX375	INSERT (MFD by 91767)	4			
-54A	1, 5	405830-3	CAP, Cylinder, main propellant valve	1			
-55	5	404576	SEAL, Actuator, lip, main propellant valve	4	4	4	
-56	5	404577	WASHER, Backup, main propellant valve	1	1	1	
-57	5	405833	RETAINER, Spring, main propellant valve	1	1	1	
-58	5	405832	SPRING, Piston, main propellant valve, large	1	1	1	
-59	5	405831	SPRING, Piston, main propellant valve, small	1	1	1	
-60	5	405822	WASHER, Spring, main propellant valve	1	1	1	
		407140	PISTON ASSY, Main propellant valve	1	1	1	
-61	8	3591-7CNVX656	INSERT (MFD by 91767)	1	1	1	
-61A	8	407140-3	PISTON, Main propellant valve	1	1	1	
-62	8	NAS1101C3-8	SCREW	4	4	4	
-63	8	405829	RETAINER, Piston rod, lipseal, main propellant valve	1	1	1	
-64	8	405827	LIPSEAL, Piston rod, main propellant valve	4	4	4	
-65	8	405828	WASHER, Piston rod lipseal, main propellant valve	1	1	1	
-66	7	406713	GUIDE, Pre-stage piston, main oxidizer valve	1	1	1	
-67	7	MS29512-03	PACKING	1	1	1	
-68	2	RD111-4008-6408	BOLT	8	8	8	
-69	2	RD153-5002-0004	WASHER	8	8	8	
-70	2	406707	LIPSEAL, Pre-stage piston, main oxidizer valve	4	4	4	
-71	2	406708	WASHER, Pre-stage piston lipseal, main oxidizer valve	1	1	1	
-72	4	406709	SPRING, Pre-stage piston, main oxidizer valve	1	1	1	
-73	4	406714-21	SPACER, Pre-stage piston, main oxidizer valve	1	1	1	
-74	4	406711	WASHER, Pre-stage spring, main oxidizer valve	1	1	1	
-74A	4	209155	WASHER ASSY, Shim, main oxidizer valve	1	1	1	
		407405	RETAINER ASSY, Sequence rod	1	1	1	
-75	3	No Number	PELLET, 1/8 IN. DIA (MFD by 07368)	1	1	1	
-75A	3	407404	RETAINER, Sequence valve	1	1	1	
-76	3	407410	WASHER, Sequence valve	1	1	1	
-77	3	409153	ROD, Sequence valve, main oxidizer valve	1	1	1	
-78	3, 4	MS16633-4025	RING	2	2	2	
-79	3	406712	PIN, Pre-stage roller, main oxidizer valve	1	1	1	
-80	4	4NBF614YJ	BEARING (MFD by 60380)	1	1	1	
-81	4	406702	PISTON, Pre-stage, main oxidizer valve	1	1	1	
-82	4	NAS1101C3-8	SCREW	4	4	4	
-83	4	407407	RETAINER, Sequence rod lipseal	1	1	1	
-84	4	407406	LIPSEAL, Sequence rod	2	2	2	
-85		DELETED					
-86		DELETED					
-87	3	NAS1101C5H18	SCREW	4	4	4	
-88	3	LD153-0013-0003	WASHER	4	4	4	
		407402	CAP ASSY, Sequence valve	1	1	1	
-89	3	1191-4CNVX375	INSERT (MFD by 91767)	4	4	4	
-89A	3	1191-3CNVX285	INSERT (MFD by 91767)	4	4	4	
-89B	3	407402-3	CAP, Sequence valve	1	1	1	
-90	3	404658-3	SEAL, Pressure-actuated, spacer type, square	1	1	1	JP
-90	3	410867-3	SEAL, Pressure-actuated, cryogenic (NHA 411031-11)	1	1	1	JYA
-91	3	NAS1101C3-8	SCREW	4	4	4	
-92	3	407409	RETAINER, Primary seal, sequence valve	1	1	1	
-93	3	407408	SEAL, Sequence valve	1	1	1	
-94	3	NAS1101C3-8	SCREW	4	4	4	
-95	3	407411	RETAINER, Secondary seal, sequence valve	1	1	1	
-96	3	407408	SEAL, Sequence valve	1	1	1	
		407401	BODY ASSY, Sequence valve	1	1	1	
-97	4	1191-3CNVX285	INSERT (MFD by 91767)	8	8	8	
-97A	4	1191-4CNVX375	INSERT (MFD by 91767)	12	12	12	
-97B	4	1191-5CNVX468	INSERT (MFD by 91767)	4	4	4	
-97C	4	407401-3	BODY, Sequence valve	1	1	1	
		408472	HOUSING ASSY, Main oxidizer valve	1	1	1	
-98	2	1185-2CNVX246	INSERT (MFD by 91767)	2	2	2	
-98A	8	1191-4CNVX375	INSERT (MFD by 91767)	36	36	36	
-98B	2	1191-9CNVX844	INSERT (MFD by 91767)	32	32	32	
-98C	8	3591-3CNVX285	INSERT (MFD by 91767)	4	4	4	
-98D	2	3591-4CNVX375	INSERT (MFD by 91767)	10	10	10	
-98E	1, 8	408742-5	HOUSING, Main oxidizer valve	1	1	1	
-99	8	RD170-2028-0002	PLATE	1	1	1	
-100	7	RD171-1020-0001	NAMEPLATE	1			
-100	7	RD171-1044-0001	NAMEPLATE		1	1	
		RD171-4009-0003	TAG		1	1	
-101	1, 5	410440	VALVE ASSY, Check, thermostatic orifice (Main oxidizer valve ... thermal-compensating orifice check valve)		1		

(a) For interchangeability status, refer to the Component Interchangeability List.

FIG. & INDEX NO	ZONE NO.	PART NUMBER	DESCRIPTION							UNITS PER ASSY	USABLE ON CODE
			1	2	3	4	5	6	7		
15-101	1,5	411033	. VALVE ASSY, Check, thermostatic orifice (Main oxidizer valve thermal-compensating orifice check valve) (NHA 411031)							1	
		410050	. . VALVE ASSY, Check, thermostatic orifice (Field configuration for 411033 incorporating MD273 change)								NP
-101	1,5	410050-11	. VALVE ASSY, Check, thermostatic orifice (Main oxidizer valve thermal-compensating orifice check valve) (NHA 411031-11)								1
-101A	5	RD111-4008-6408	. BOLT (AP)							12	12
-101B	5	RD153-5002-0004	. WASHER (AP)							12	12
-102	6	404631	. PLUG, Leak tap port							1	1
-103	6	NAS1004-8H	. BOLT							4	4
-104	6	LD153-0013-0002	. WASHER							4	4
-105	6	410426	. COVER, Actuator port, main oxidizer valve							1	1
-106	6	404666-3	. SEAL, Pressure-actuated, spacer type, square flange							1	1
-107	6	RD111-3008-5411	. BOLT							4	4
-108	6	410439	. WASHER, Cap, main oxidizer valve							4	4
-109	6	410434	. HOUSING ASSY, Filter, main oxidizer valve (Welded) (NHA 411033)							1	1
-109	6	41112-11	. HOUSING ASSY, Filter, main oxidizer valve (Welded) (Field configuration for 410434) (NHA 411033)							1	
-109	6	411038	. HOUSING ASSY, Filter, main oxidizer valve (Welded) (NHA 410050-11)								1
-109	6	411112	. HOUSING ASSY, Filter, main oxidizer valve (Welded) (Field configuration for 411038) (NHA 410050-11)								1
-110	6	12130PL12	. SEAL (MFD by 08199)							1	1
-111	6	12130PL26	. SEAL (MFD by 08199)							1	1
-112	6	410445	. POPPET, Check valve, thermostatic orifice							1	1
-113	6	556444	. SPRING, Main oxidizer valve							1	1
-114	6	410438	. NUT, Compensator, main oxidizer valve							1	1
-115	6	410428	. SPACER, Filter, main oxidizer valve							1	1
-116	6	410437-XXX	. ORIFICE, Compensator, main oxidizer valve (Main oxidizer valve thermal-compensating orifice (Orifice size determined by calibration)							1	1
-117	6	410044	. COMPENSATOR ASSY, Main oxidizer valve (Welded)							1	
-117	7	411032	. COMPENSATOR ASSY, Main oxidizer valve (Welded)								1
		411043	. CAP ASSY, Cylinder, main oxidizer valve							1	1
-118	6	1191-4CNV0375	. INSERT (MFD by 91767)							8	8
-119	6	411043-3	. CAP, Cylinder, main oxidizer valve							1	1
-120	6	RD171-4008-0001	. TAG							1	1
		RD171-4009-0001	. TAG							1	1

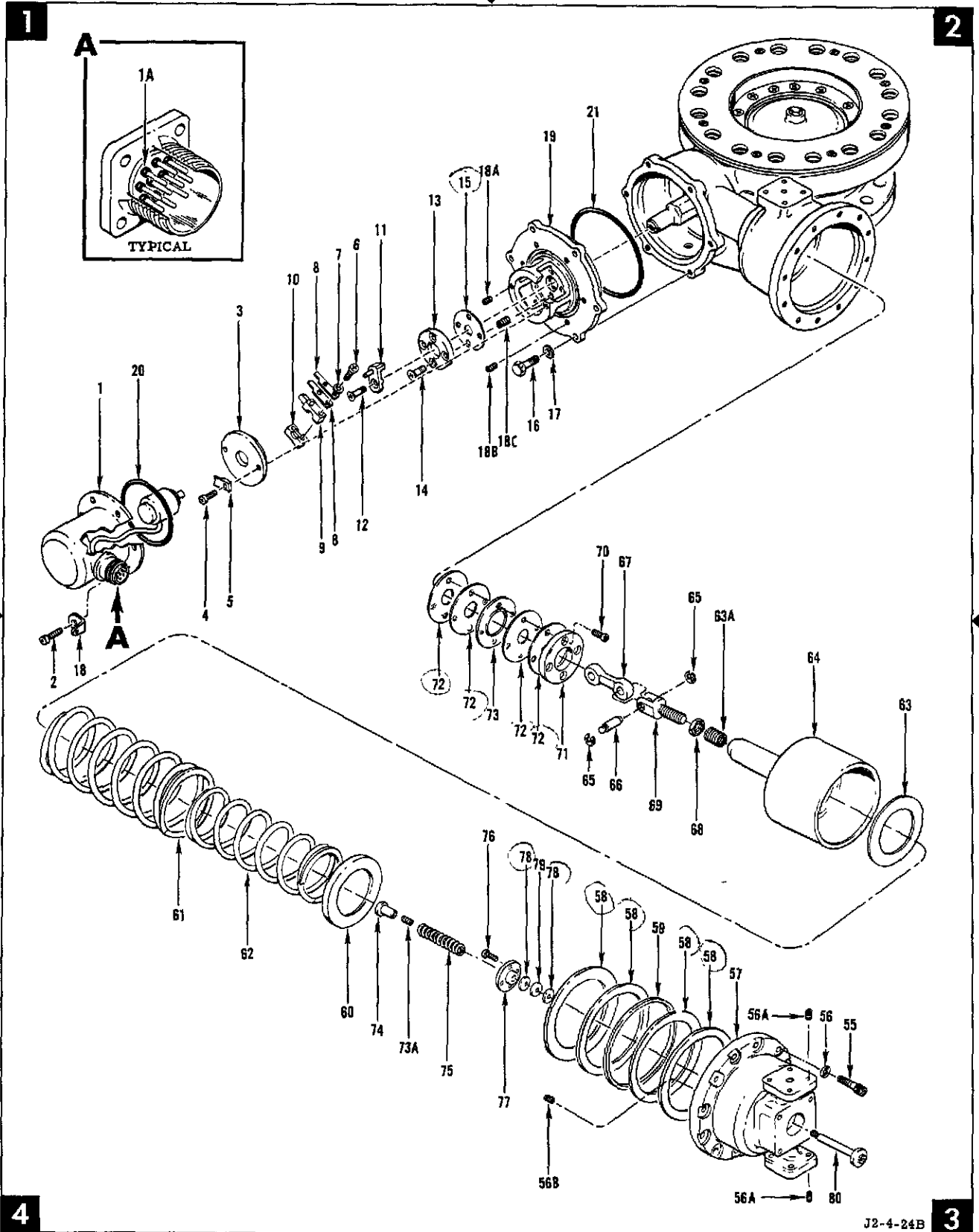


Figure 16. Main Fuel Valve Assembly (Sheet 1 of 2)

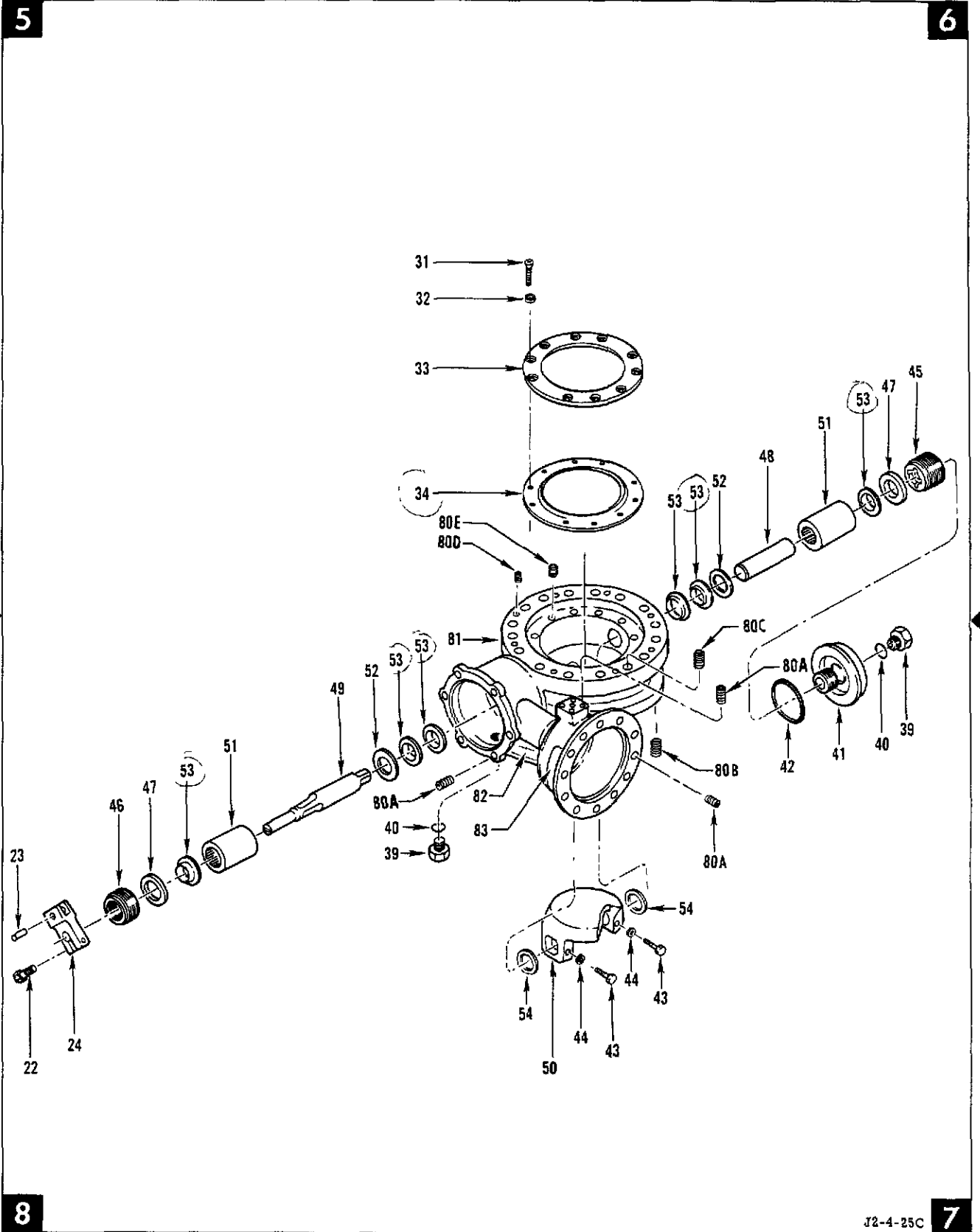


Figure 16. Main Fuel Valve Assembly (Sheet 2 of 2)

Section II

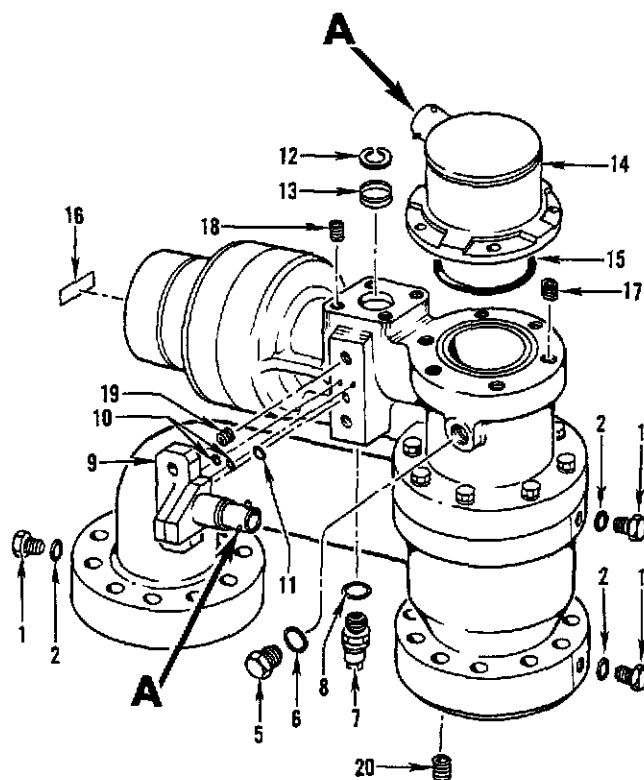
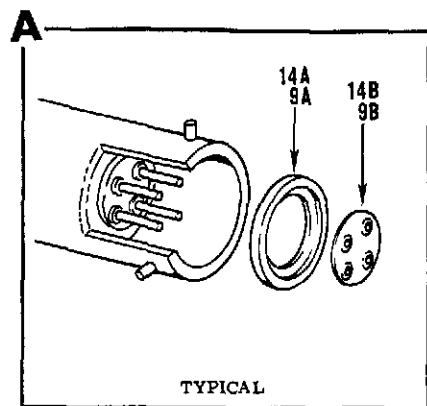
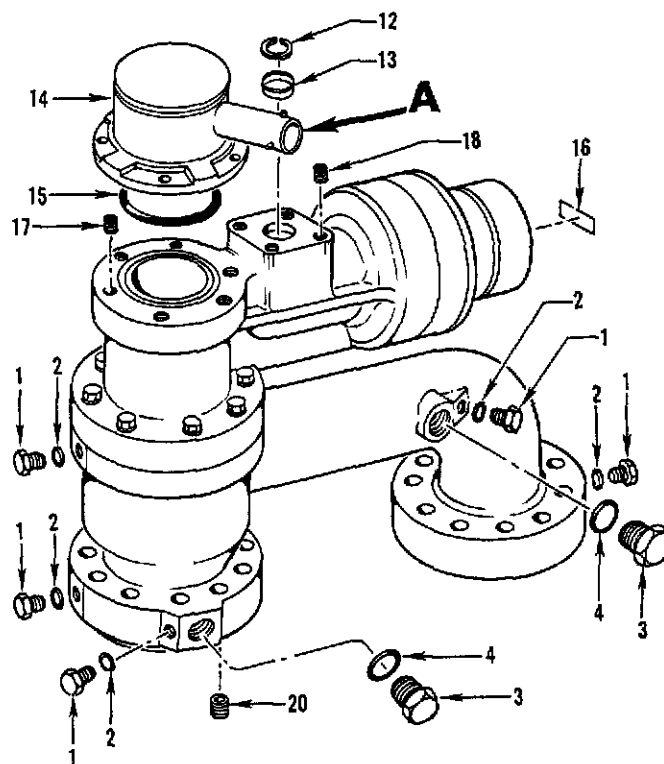
R-3825-4

Propellant Feed System

FIG. & INDEX NO.	ZONE NO	PART NUMBER	DESCRIPTION							UNITS PER ASSY	USABLE ON CODE
			1	2	3	4	5	6	7		
16-		409820 (a)	VALVE ASSY, Main fuel (Replaces 409120 for spares) (See figure 14, index 77, ... for REQMT)							REF	
- 1	1	405817	INDICATOR ASSY, Position, propellant valve (J114)							1	
- 1A	1	RD421-5001-0016	INSULATOR (NHA 103850)							7	
- 2	4	NAS1101C3H8	SCREW (AP)							6	
- 3	1	405820	BASE, Position indicator, main propellant valve							1	
- 4	1	NAS1101C06H8	SCREW (AP)							2	
- 5	1	404580	CLIP, Potentiometer bracket, main propellant valve							2	
- 6	1	NAS1101-04H10	SCREW							2	
- 7	1	NAS620-4	WASHER							2	
- 8	1	250382	SPRING, Transducer, arm, 3 IN.							2	
- 9	1	251251	ARM, Instrument actuating							1	
-10	1	251252	CLAMP, Instrument actuating							1	
-11	1	404537	ARM ASSY, Actuator, position indicator propellant valve (Braze)							1	
-12	1	NAS1189C3T10	SCREW (AP)							1	
-13	1	405819	RETAINER, Lipseal, main propellant valve							1	
-14	1	NAS1102C3-8	SCREW (AP)							4	
-15	1	405818	LIPSEAL, Position indicator, main propellant valve							1	
-16	2	NAS1004-3H	BOLT							6	
-17	2	LD153-0013-0002	WASHER							6	
-18	4	RD191-4002-1004	LUG							1	
		405816	COVER ASSY, Actuator, main propellant valve							1	
-18A	2	1185-06CNVX207	INSERT (MFD by 91767)							2	
-18B	2	1191-3CNVX285	INSERT (MFD by 91767)							6	
-18C	2	3591-3CNVX285	INSERT (MFD by 91767)							4	
-19	2	405816-5	COVER, Actuator, main propellant valve							1	
-20	1	MS29513-147	PACKING							1	
-21	2	MS29513-239	PACKING							1	
-22	8	NAS1005-9H	BOLT							1	
-23	8	404568	PIN, Lever, main propellant valve							1	
-24	8	405845	LEVER, Main propellant valve							1	
-25											
THRU											
-30		DELETED									
-31	5	NAS1102C4-12	SCREW							10	
-32	5	404544	SPACER, Thermal, main propellant valve							10	
-33	5	407435	RETAINER, Gate seal, main fuel valve							1	
-34	5	407089	SEAL, Gate, main propellant valve							1	
-35											
THRU											
-38		DELETED									
-39	7, 8	553364	VALVE ASSY, Relief, low temperature, 1/4 IN. vent (Alternate 553364-21)							2	
-40	7, 8	MS29512-04	PACKING							2	
-41	7	405801	CAP, Main propellant valve							1	
-42	7	MS29513-133	PACKING							1	
-43	7	404543	BOLT, Gate, main propellant valve (Alternate 404543-3)							2	
-44	7	RD153-3002-0003	WASHER							2	
-45	6	405803	RETAINER ASSY, Idler shaft seal, main propellant valve							1	
		No Number	PELLET, 1/8 IN. DIA (MFD by 07368)							1	
-46	8	405812	RETAINER ASSY, Drive shaft seal, main propellant valve							1	
		No Number	PELLET, 1/8 IN. DIA (MFD by 07368)							1	
-47	6, 8	405805	WASHER, Spherical, main propellant valve							2	
-48	6	405810	SHAFT, Gate idler, main propellant valve							1	
-49	8	405811	SHAFT, Gate drive, main propellant valve							1	
-50	8	405809	GATE, Main oxidizer valve (Fuel)							1	
-51	6, 8	AG33411	BEARING (MFD by 60380)							2	
-52	6, 8	404560	WASHER, Propellant valve shaft seal							2	
-53	6, 8	404561	SEAL, Lip, propellant valve							6	
-54	7	404562-3	SPACER, Main propellant valve (Use as required at time of assembly)							2	
-54	7	404562-5	SPACER, Main propellant valve (Use as required at time of assembly)							2	
-55	3	RD111-4008-0408	BOLT							12	
-56	3	LD153-0013-0002	WASHER							12	
		405821	COVER ASSY, Actuator, main fuel valve							1	
-56A	3	1191-4CNVX375	INSERT (MFD by 91767)							12	
-56B	3	3591-3CNVX285	INSERT (MFD by 91767)							4	
-57	3	405821-5	COVER, Actuator, main fuel valve							1	
-58	3	404576	SEAL, Actuator, lip main propellant valve							4	
-59	3	404577	WASHER, Actuator, backup, main propellant valve							1	
-60	4	405833	RETAINER, Spring, main propellant valve							1	
-61	4	405832	SPRING, Piston, main propellant valve, large							1	
-62	4	405831	SPRING, Piston, main propellant valve, small							1	
-63	3	405822	WASHER, Spring, main propellant valve							1	
		407140	PISTON ASSY, Main propellant valve							1	
(a) For interchangeability status, refer to the Component Interchangeability List.											

FIG. & INDEX NO.	ZONE NO.	PART NUMBER	DESCRIPTION							UNITS PER ASSY.	USABLE ON CODE
			1	2	3	4	5	6	7		
16-63A	2	3591-8CNVX656	.	.	INSERT (MFD by 91767)	.	.	.	.	1	
-64	3	407140-3	.	.	PISTON, Main propellant valve	.	.	.	.	1	
-65	2,3	MS16633-4031	.	.	RING	.	.	.	.	2	
-66	3	404569	.	.	PIN, Link, main propellant valve	.	.	.	.	1	
-67	2	405824	.	.	LINK, Main propellant valve	.	.	.	.	1	
-68	3	AN316C7R	.	.	NUT	.	.	.	.	1	
-69	3	405689	.	.	CLEVIS, Main propellant valve	.	.	.	.	1	
-70	2	NAS1101C3-8	.	.	SCREW	.	.	.	.	4	
-71	3	405829	.	.	RETAINER, Piston rod lipseal, main propellant valve	.	.	.	.	1	
-72	3,4	405827	.	.	LIPSEAL, Piston rod, main propellant valve	.	.	.	.	4	
-73	3	405828	.	.	WASHER, Piston rod lipseal, main propellant valve	.	.	.	.	1	
		405839	.	.	CAP ASSY, Sequence valve	.	.	.	.	1	
-73A	4	3591-3CNVX285	.	.	INSERT (MFD by 91767)	.	.	.	.	1	
-74	4	405839-3	.	.	CAP, Sequence valve	.	.	.	.	1	
-75	4	405835	.	.	SPRING, Sequence valve	.	.	.	.	1	
-76	4	NAS1101C3-8	.	.	SCREW	.	.	.	.	4	
-77	3	405838	.	.	RETAINER, Rod seal, sequence	.	.	.	.	1	
-78	3	405836	.	.	SEAL, Lip, sequence valve	.	.	.	.	2	
-79	3	405837	.	.	WASHER, Backup, sequence valve	.	.	.	.	1	
-80	3	405834	.	.	PISTON, Sequence valve	.	.	.	.	1	
		408473	.	.	HOUSING ASSY, Main fuel valve (Replaces 405806)	.	.	.	.	1	
-80A	7	1191-4CNVX375	.	.	INSERT (MFD by 91767)	.	.	.	.	22	
-80B	7	1191-8CNVX750	.	.	INSERT (MFD by 91767)	.	.	.	.	16	
-80C	7	1191-8CNVX844	.	.	INSERT (MFD by 91767)	.	.	.	.	16	
-80D	5	3591-3CNVX285	.	.	INSERT (MFD by 91767)	.	.	.	.	12	
-80E	5	3591-4CNVX375	.	.	INSERT (MFD by 91767)	.	.	.	.	10	
-81	8	408473-5	.	.	HOUSING, Main fuel valve (Replaces 405806-5)	.	.	.	.	1	
-82	8	RD171-1020-0001	.	.	NAMEPLATE	.	.	.	.	1	
-83	8	RD170-2028-0002	.	.	PLATE	.	.	.	.	1	

Figure 17 deleted.

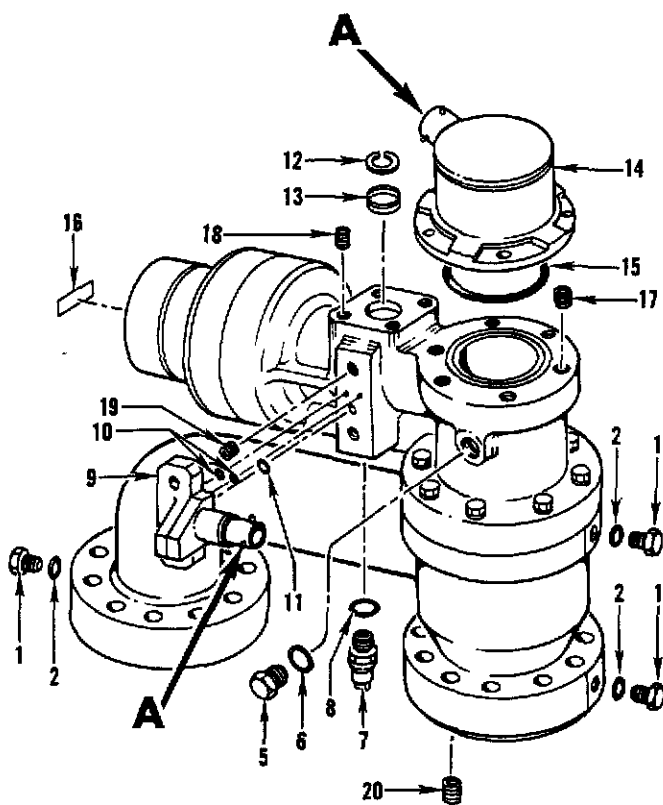
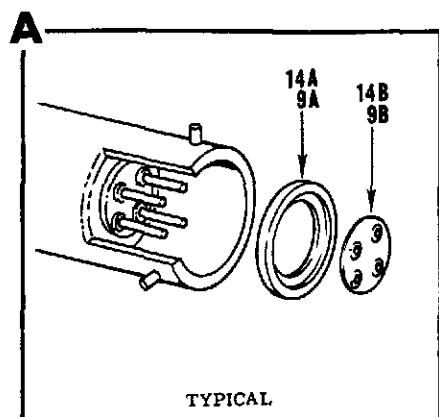
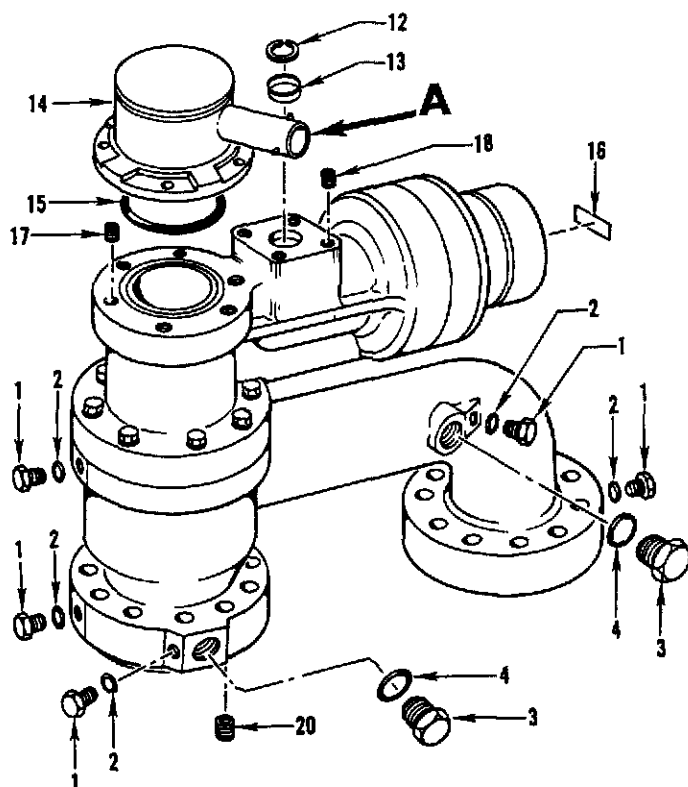


J2-4-124A

Figure 17A. Mixture Ratio Control Valve Assembly.
PCA VALVE

FIG. & INDEX NO.	ZONE NO.	PART NUMBER	DESCRIPTION							UNITS PER ASSY.	USABLE ON CODE
			1	2	3	4	5	6	7		
17-		251351-131 (a)	VALVE ASSY, Propellant utilization (May replace 251351-61, -71, -81, -91, ... -101, -111, -121, or -151 for spares) (See figure 14, index 258, for REQMT)							REF	VBM
		251351-141 (a)	VALVE ASSY, Propellant utilization (May replace 251351-61, -71, -81, -91, ... -101, -111, -121, or -151 for spares) (See figure 14, index 258, for REQMT)							REF	
- 1		553364	VALVE ASSY, Relief, low temperature, 1/4 IN. vent (Alternate 553364-21)							1	
- 2		MS29512-04	PACKING							1	
- 3		AN894D4-2	BUSHING							1	
- 4		MS29512-02	PACKING							1	
- 5		NA5-26726T4	ACTUATOR ASSY, Propellant utilization valve, electro-mechanical (Replaces 251010-11) (NHA 251351-141)							1	
- 5		NA5-26726T5	ACTUATOR ASSY, Propellant utilization valve, electro-mechanical (Replaces 251010-21) (NHA 251351-131)							1	
- 6		RD111-1015-3410	BOLT (AP)							10	
- 7		RD153-5002-0004	WASHER (AP)							10	
- 7A		RD421-5001-0016	INSULATOR (NHA 103850)							24	
- 7B		501551-91	RECEPTACLE ASSY, Electrical, 20-16P shell size (Motor) (J36)							1	
- 7C		501551-161	RECEPTACLE ASSY, Electrical, 16S-1P shell size (Telemetry) (J119)							1	
- 8		459719-3 (a)	SEAL, Pressure-actuated, cryogenic							1	
- 9		S10519-1	SCREW (MFD by 07368)							6	
-10		LD153-0010-0003	WASHER							6	
-11		251366	RETAINER, Lipseal actuator							1	
-12		251373	SEAL, Face actuator							1	
-13		251401	SEAL, Lip actuator							2	
-14		251401	SEAL, Lip actuator							2	
-15		251365	SEPARATOR, Lipseal, propellant utilization valve							1	
		251368-11	GATE ASSY, Propellant utilization valve							1	
-16		RD111-1010-6311	BOLT							3	
-17		251403	PLATE, Orifice, propellant utilization valve							1	
-18		NAS679C3W	NUT							3	
-19		251367	FLANGE, Gate, propellant utilization valve							1	
-20		19-251406	BEARING, Ball, propellant utilization valve							2	
		251402	SPACER ASSY, Gate							1	
-21		RD122-3001-0904	PIN							1	
-22		251402-3	SPACER, Gate							1	
-23		251372	GATE, Valve, propellant utilization							1	
-24		NAS1189C06T8	SCREW (NHA 251351-131, 251351-141, and 251351-151)							3	
-25		251361-3	DEFLECTOR, Flow, propellant utilization valve							1	
-26		459760-5 (a)	SEAL, Pressure-actuated, cryogenic							1	
-27		701853	PLUG, Instrumentation port, unvented							2	
-28		408767 (a)	SEAL, Pressure-actuated, cryogenic							2	
-29		RD273-1020-1002	PLUG AND BLEEDER							3	
-30		RD261-6001-0001	GASKET							3	
		251362	HOUSING ASSY, Propellant utilization valve							1	
-31		RD122-3001-0911	PIN							1	
-32		RD122-3001-0911	PIN							1	
-33		MS21209F4-15	INSERT							10	
-34		1185-08CNVX207	INSERT (MFD by 91767)							3	
-35		251362-5	HOUSING, Propellant utilization valve							1	
-36		RD171-1020-0001	NAMEPLATE							1	
-37		RD273-1020-1002	PLUG AND BLEEDER (See figure 14, index 241, for REQMT) (NHA 406651)							REF	
-38		RD261-6001-0001	GASKET (See figure 14, index 242, for REQMT) (NHA 406651)							REF	

(a) For interchangeability status, refer to the Component Interchangeability List.



J2-4-124A

Figure 17A. Mixture Ratio Control Valve Assembly

FIG. & INDEX NO.	PART NO.	DESCRIPTION	UNITS PER ASSY.	USABLE ON CODE
		1 2 3 4 5 6 7		
17A-	309415-211	VALVE ASSY, Mixture ratio control (See figure 14, index 258A, for REQMT) . .	REF	
	309415-201	VALVE ASSY, Mixture ratio control (See figure 14, index 258A, for REQMT) . .	REF	
	309415-191	VALVE ASSY, Mixture ratio control (See figure 14, index 258A, for REQMT) . .	REF	
- 1	RD273-1020-1002	. PLUG AND BLEEDER	5	
- 2	RD261-6001-0001	. GASKET	5	
- 3	701853	. PLUG, Instrumentation port, unvented	2	
- 4	408767	. SEAL, Pressure-actuated	2	
- 5	553364-21	. VALVE ASSY, Relief, low temperature, 1/4 IN. vent	1	
- 6	RE261-3004-0004	. SEAL (Interchangeable with 12100CR4 MFD by 08199)	1	
- 7	553372-11	. VALVE ASSY, 1/4 IN. vent port check	1	
- 8	RE261-3004-0004	. SEAL (Interchangeable with 12100CR4 MFD by 08199)	1	
- 9	NA5-28203T1	. VALVE ASSY, 3-way two position, direct solenoid operated (J36)	1	
	RD111-4009-0406	. BOLT (AP)	2	
	RD153-5002-0004	. WASHER (AP)	2	
- 9A	10-438194-111	. . GASKET (MFD by 12143)	1	
- 9B	10-416277-4	. . SPACER (MFD by 12143)	1	
-10	12130CR8	. SEAL (MFD by 08199)	2	
-11	12130CR16	. SEAL (MFD by 08199)	1	
-12	N5001-75C	. RING, Snap (MFD by 79136)	1	
-13	NA5-260262	. FILTER ASSY, Control circuit	1	
-14	NA5-27480	. TRANSDUCER, Wirewound, potentiometric type, rotary-motion, ...	1	
		2K ohms, with integral single-pole, double-throw switch (J119)		
	RD111-1009-8409	. BOLT (AP)	6	
	RD153-5002-0004	. WASHER (AP)	6	
-14A	10-438194-111	. . GASKET (MFD by 12143)	1	
-14B	10-416277-98	. . SPACER (MFD by 12143)	1	
-15	22022CR3125	. SEAL (MFD by 08199)	1	
-16	RD170-2028-0002	. NAMEPLATE	1	
	RD171-4004-0002	. NAMEPLATE (Used on valve 309415-211 only)	1	
	309416	. HOUSING ASSY, Actuator, mixture ratio control	1	
-17	1191-4CNV0375	. . INSERT (MFD by 91767)	6	
-18	1191-4CNV0500	. . INSERT (MFD by 91767)	4	
-19	3591-4CNV0375	. . INSERT (MFD by 91767)	2	
	251362	. HOUSING ASSY, Propellant utilization valve (Mixture ratio control)	1	
-20	1185-06CNVX207	. . INSERT (MFD by 91767)	3	
(a) For interchangeability status, refer to the Component Interchangeability List.				

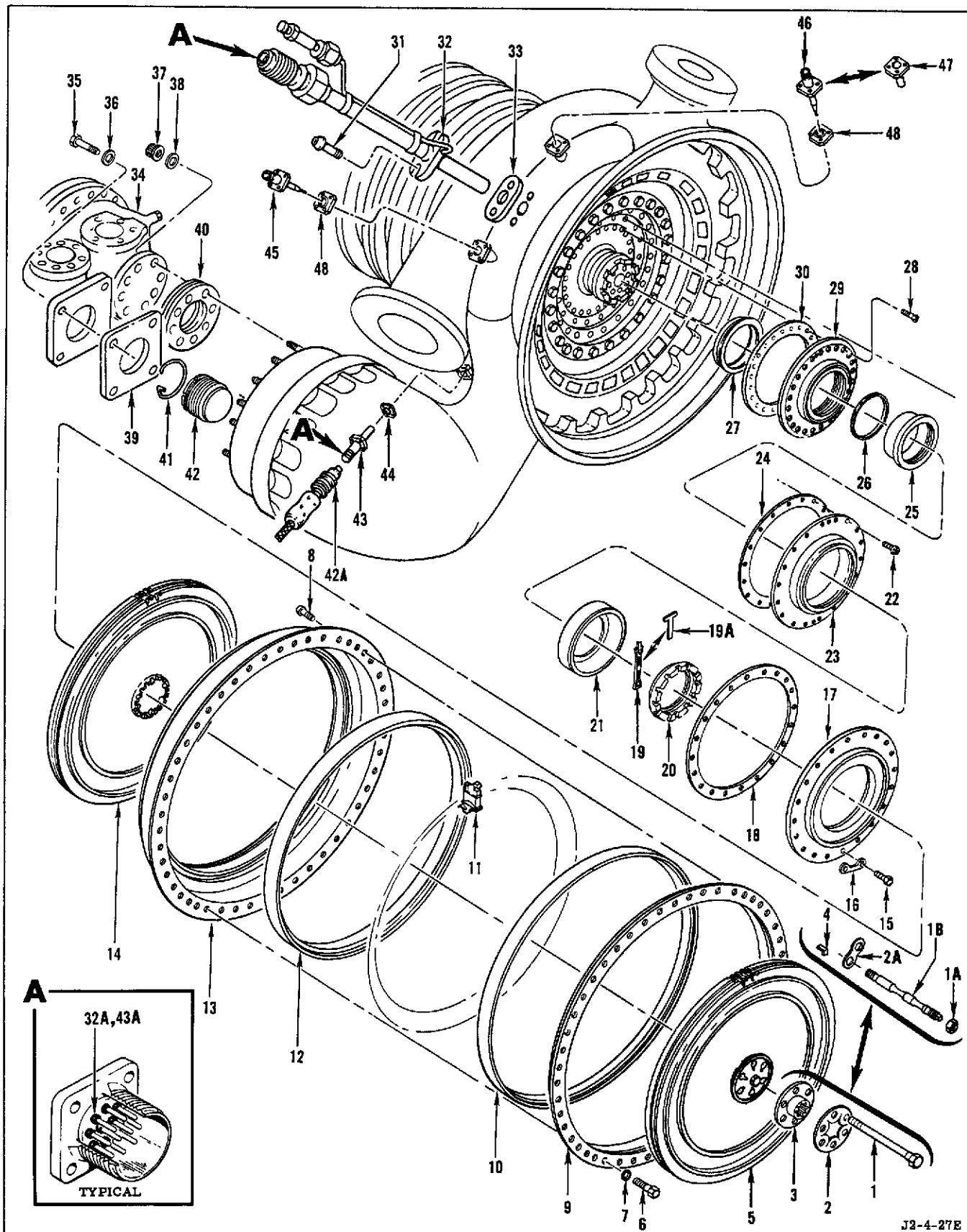


Figure 18. Fuel Turbopump Assembly

Propellant Feed System

FIG & INDEX NO	ZONE NO	PART NUMBER	DESCRIPTION	UNITS PER ASSY			USABLE ON CODE
			1 2 3 4 5 6 7				
18-		460390-191	TURBOPUMP ASSY, Fuel (See figure 14, index 195, for REQMT)	REF			
		460390-201	TURBOPUMP ASSY, Fuel (See figure 14, index 195, for REQMT)	REF			
		460390-181	TURBOPUMP ASSY, Fuel (See figure 14, index 195, for REQMT)		REF		
		460390-151	TURBOPUMP ASSY, Fuel (See figure 14, index 195, for REQMT)			REF	
		460160-51 (a)	TURBOPUMP ASSY, Fuel (See figure 14, index 195, for REQMT)			REF	
		460160-61 (a)	TURBOPUMP ASSY, Fuel (See figure 14, index 195, for REQMT)			REF	
		460160-71	TURBOPUMP ASSY, Fuel (See figure 14, index 195, for REQMT)			REF	
			PARTIAL BREAKDOWN FOLLOWS				
- 1		460170	. BOLT, Turbine, wheel fuel turbopump	6			
- 1A		RD114-1002-0006	. NUT		6	6	
- 1B		460164	. STUD, Rotor		6	6	
- 2		456157	. TAB, Lock turbine rotor bolt	1			
- 2A		460166	. TAB, Lock nut turbine wheel		3	3	
- 3		456180	. PLATE, Torque, turbine	1			
- 4		560167	. LOCK, Stud, turbine wheel		6	6	
- 5		460372	. WHEEL ASSY, Curvic turbine, 2nd stage, fuel pump (Welded)	1			
- 5		460374-11	. WHEEL ASSY, Studded turbine, 2nd stage, fuel pump (Welded)		1	1	
- 6		RD111-1010-0411	. BOLT	24	24	24	
- 7		457428	. TAB, Lock, turbine stator retaining bolt	24	24	24	
- 8		456189	. BOLT, Turbine stator	24	24	24	
- 9		456147	. RETAINER, Turbine stator	1	1	1	
-10		456159	. SEAL ASSY, Turbine 2nd stage (Welded)	1	1	1	
-11		456153	. BLADE ASSY, Stator, turbine, fuel (Welded)	115			
-11		460383	. BLADE ASSY, Stator, turbine, fuel (Welded)		115	115	
-12		456158	. SEAL ASSY, Turbine, 1st stage (Fuel turbine seal) (Welded)	1			
			(NHA 460390-191)				
-12		460358	. SEAL ASSY, Turbine, 1st stage (Fuel turbine seal) (Welded)	1	1	1	
			(NHA 460160-51, 460160-61, 460160-71, 460390-151, 460390-181, 460390-201)				
-13		456154	. RING ASSY, Turbine stator (Welded)	1	1	1	
-14		460371	. WHEEL ASSY, Curvic turbine, 1st stage, fuel pump (Welded)	1			
-14		460373-21	. WHEEL ASSY, Studded turbine, 1st stage, fuel pump (Welded)		1	1	
-15		RD111-1010-0411	. BOLT	20	20	20	
-16		457427	. TAB, Lock, turbine shaft seal retaining bolt	10	10	10	
-17		NA5-26628	. SEAL, Circumferential turbine, hydrogen pump, mark 15	1	1	1	
-18		456183	. GASKET, Turbine seal, hydrogen pump (NHA 460390-191)	1			
-18		460141	. GASKET, Turbine seal, fuel turbopump (NHA 460160-51, 460160-61, 460160-71, 460390-151, 460390-181, 460390-201)	1	1	1	
-19		457445	. LOCK, Rotor nut, fuel pump	1			
-19A		460168	. LOCK, Tab, rotor fuel turbopump		3	3	
-20		457448	. NUT, Rotor, fuel pump, turbine end	1			
-20		460165	. NUT, Rotor, fuel pump, turbine end		1	1	
-21		456287	. RING, Mating, secondary, fuel pump	1	1	1	
-22		456188	. BOLT, Secondary seal, hydrogen pump	18	18	18	
-23		NA5-260115	. SEAL ASSY, Secondary hydrogen, face type, mark 15 (Fuel turbopump secondary seal) (Welded)	1	1	1	
-24		460157	. SHIM, Secondary seal, fuel turbopump (Use -3 thru -19 as required at time of assembling pump)	AR	AR	AR	
-25		460353	. SPACER, Fuel turbopump mating ring	1	1	1	
-26		ARI05C02318AIM	. OMNISEAL, Dynamic (Fuel turbopump omniseal) (MFD by 70128)	1	1	1	
-27		456288	. RING, Mating, primary, fuel turbopump	1	1	1	
-28		456187	. BOLT, Flange, hydrogen pump	24	24	24	
-29		NA5-260114	. SEAL ASSY, Primary hydrogen, face type, mark 15 (Fuel turbopump primary seal) (Welded)	1	1	1	
-30		460352	. SHIM, Primary seal, fuel turbopump (Use -3 thru -17 as required at time of assembling pump)	AR	AR	AR	
-31		RD111-3006-4212	. BOLT	2	2	2	
-32		NA5-27328	. TRANSDUCER, Speed sensing, dual element, liquid hydrogen service (Fuel turbopump speed transducer) (J112)	1	1	1	
-32A		RD421-5001-0016	. INSULATOR	4	4	4	
-33		404664	. SEAL ASSY, Static, spacer type	1	1	1	
		0500-3-3TG	. PACKING (MFD by 04319)	1	1	1	
-34		309040-31	. VALVE ASSY, Control, gas generator (See figure 19 for breakdown)	1	1	1	
-35		RD111-3004-3508	. BOLT (AP)	4	4	4	
-36		LD153-0013-0003	. WASHER (AP)	4	4	4	
-37		RD114-8002-0004	. NUT (AP)	7			
-37		RD114-8003-1004	. NUT (AP)		7	7	
-38		LD153-0013-0002	. WASHER (AP)	7	7	7	
-39		303862	. SEAL, Pressure-actuated, LOX service	1	1	1	
-40		404657-9	. SEAL, Pressure-actuated	1	1		
-40		410853-3 (a)	. SEAL, Pressure-actuated, cryogenic			1	
-41		303322	. RING, Retaining, gas generator poppet (NHA 460390-191, 460390-201)	1			
-41		309147	. RING, Retaining, gas generator poppet (NHA 460160-51, 460160-61, 460390-151, 460390-181)		1	1	
-41		309147-3	. RING, Retaining, gas generator poppet (NHA 460160-71)			1	

(a) For interchangeability status, refer to the Component Interchangeability List.

Section II
Propellant Feed System

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FIG. & INDEX NO.	ZONE NO.	PART NUMBER	DESCRIPTION							UNITS PER ASSY			USABLE ON CODE
			1	2	3	4	5	6	7				
18-42		303323	.	POPPET ASSY, Injector, oxidizer (Gas generator oxidizer						1	1	1	FPB
-42A		502272-41	.	injector poppet) (Bonded)						REF			
			.	PLUG ASSY, Electrical, 10SL-3S shell size (Fuel pump bearing									
			.	temperature) (PST1) (Altered from RD414-1009-0005)									
			.	(NHA 704497 and 704497-11) (See figure 28, index 78A,									
			.	for REQMT) (P161)									
-43		NA5-27326	.	TRANSDUCER, Temperature, resistance-type, for LH2 bearing . . .						1			
			.	temperature service (MOV housing) (Tap PST1) (J161)									
		RD111-3006-4215	.	BOLT (AP)						4			
		LD153-0013-0002	.	WASHER (AP)						4			
		RD191-4002-1005	.	LUG (AP)						1			
		NAS679C4W	.	NUT (AP)						4			
-43A		RD421-5001-0016	.	INSULATOR						3			
-44		404686-7	.	SEAL, Pressure-actuated, spacer type, square flange						1			
-45		NA5-27342T4	.	TRANSDUCER, Temperature, thermocouple, hot gas (Gas							1	1	
			.	generator overtemperature transducer) (Tap GGT1) (J160)									
-45A		DELETED	.	TRANSDUCER, Temperature, resistance type, for hot-gas						1			
-46		NA5-27323T3	.	service (Fuel turbine in temperature) (Tap TGT1)									
			.	(Alternate NA5-27323T6) (J126)									
-46A		DELETED	.	DUMMY ASSY, Temperature transducer						1		1	
-47		704473	.	BOLT (AP)						4		4	
		RD111-1009-3411	.	WASHER (AP)						4		4	
		RD153-5004-0004	.	LUG (AP)						2		2	
		RD191-4002-1005	.	SEAL, Pressure-actuated, instrumentation, hot gas						2			
-48		404681	.	SEAL, Pressure-actuated, instrumentation, hot gas								2	
-48		459721 (a)	.										
(a) For interchangeability status, refer to the Component Interchangeability List.													

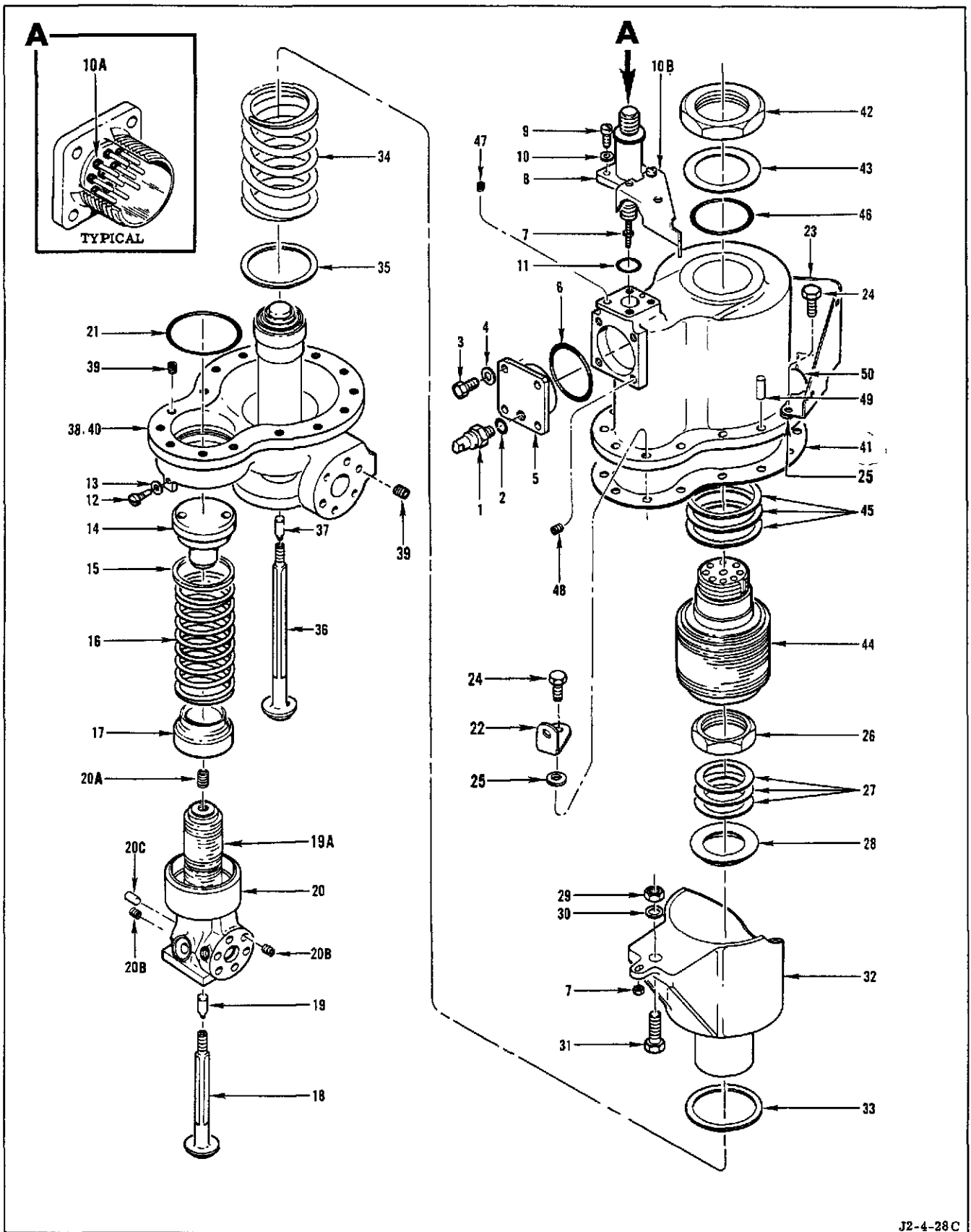


Figure 19. Gas Generator Control Valve Assembly

Propellant Feed System

FIG & INDEX NO.	ZONE NO	PART NUMBER	DESCRIPTION							UNITS PER ASSY.	USABLE ON CODE
			1	2	3	4	5	6	7		
19-		309040-31	VALVE ASSY, control, gas generator (See figure 18, index 34, for REQMT)							REF	
- 1		553372-11	VALVE ASSY, 1/4 IN. vent port check (May replace 553372 for spares)							1	
- 2		MS28778-4	PACKING							1	
- 3		RD111-1011-0410	BOLT							4	
- 4		LD153-0013-0002	WASHER							4	
- 5		307627	COVER, Access, gas generator, control valve							1	
- 6		MS29513-140	PACKING							1	
- 7		24380-03600	NUT, Transducer stem (MFD by 80294) (Component of NA5-27307-1)							2	
- 8		NA5-27307	RESISTOR, Variable, linear motion, 2K ohms, with integral single-pole, ... double-throw switch (J116)							1	
- 9		AN501AD10-12	SCREW (AP)							4	
-10		LD153-0010-0007	WASHER (AP)							4	
-10A		RD421-5001-0016	INSULATOR (NHA 103850)							7	
-10B		502838	BRACKET, Harness support, position switch, gas generator							1	
-11		MS29513-116	PACKING							1	
		309040-21	VALVE SUB-ASSY, Control, gas generator							1	
-12		303608	SCREW, Retainer (Altered from AN501AD10-10) (AP)							1	
-13		LD153-0010-0007	WASHER (AP)							1	
-14		308547	RETAINER, Spring, gas generator, control valve							1	
-15		307474	WASHER, Gas generator, control valve							1	
-16		308548	SPRING, Gas generator, control valve							1	
-17		308786	GUIDE, Spring, gas generator, control valve							1	
-18		303533	POPPET ASSY, Oxidizer, gas generator control valve (Gas generator oxidizer injector poppet) (Bonded)							1	
-19		302553	PIN, Gas generator, control valve							1	
		308543	BELLOWS AND BODY ASSY, Oxidizer (Welded)							1	
-19A		303614	BELLOWS ASSY, Oxidizer, gas generator, valve (Welded)							1	
-20		308541	BODY ASSY, Oxidizer, gas generator, control valve (Welded)							1	
-20A		3591-7CNVX656	INSERT (MFD by 91767)							2	
-20B		1191-4CNVX375	INSERT (MFD by 91767)							6	
-20C		281001	PLUG, Pin (MFD by 92555)							1	
-21		MS29513-235	PACKING							1	
-22		502833-27	BRACKET, Harness support							1	
-23		502839	BRACKET, Harness support, gas generator, control valve							1	
		309040-11	VALVE SUB-ASSY, Control, gas generator							1	
-24		RD111-1011-0414	BOLT (AP)							15	
-25		LD153-0013-0002	WASHER (AP)							15	
-26		307636	NUT, Gas generator, control valve							1	
-27		302551	SHIM, Gas generator, control valve							7	
-28		308785	WASHER, Tab, gas generator, control valve							1	
-29		RD114-1002-0006	NUT							1	
-30		LD153-0010-0014	WASHER							1	
-31		307648	BOLT, Adjustment, oxidizer gas generator, control valve							1	
-32		308778	YOKE, Gas generator, control valve							1	
-33		307829	WASHER, Spring, gas generator, control valve							1	
-34		302554	SPRING, Gas generator, control valve							1	
-35		302555	BACKUP, Spring, gas generator, control valve							1	
-36		307631	POPPET ASSY, Fuel, gas generator, control valve (Bonded)							1	
-37		302553	PIN, Gas generator, control valve							1	
		308784	BELLOWS AND HOUSING ASSY, Fuel, gas generator, control valve (Welded)							1	
-38		308783	HOUSING ASSY, Fuel, gas generator, control valve (Welded)							1	
-39		1191-4CNVX375	INSERT (MFD by 91767)							21	
-40		308783-3	HOUSING, Fuel, gas generator, control valve							1	
-41		302557	GASKET, Cover, gas generator, control valve							1	
-42		307639	NUT, Retainer, gas generator, control valve							1	
-43		307638-5	WASHER, Lock, gas generator, control valve							1	
-44		303921	ACTUATOR ASSY, Gas generator, control valve (Welded)							1	
-45		302552	SHIM, Adjustment, gas generator, control valve							15	
-46		MS29513-141	PACKING							1	
		308545	COVER ASSY, Control valve, gas generator							1	
-47		1191-3CNVX285	INSERT (MFD by 91767)							4	
-48		1191-4CNVX250	INSERT (MFD by 91767)							4	
-49		MS171525	PIN							3	
-50		308545-5	COVER, Control valve, gas generator							1	

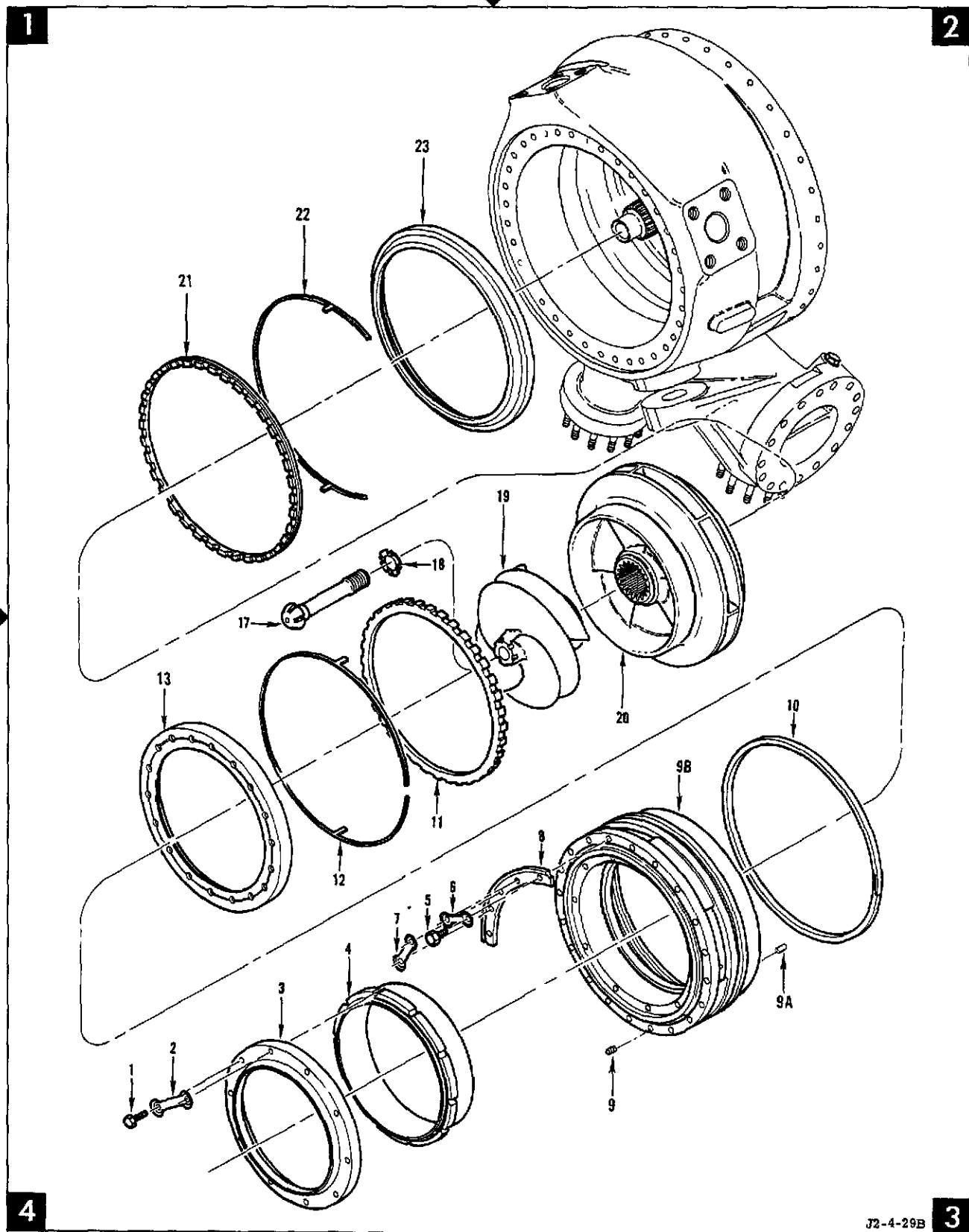


Figure 20. Oxidizer Turbopump Assembly (Sheet 1 of 2)

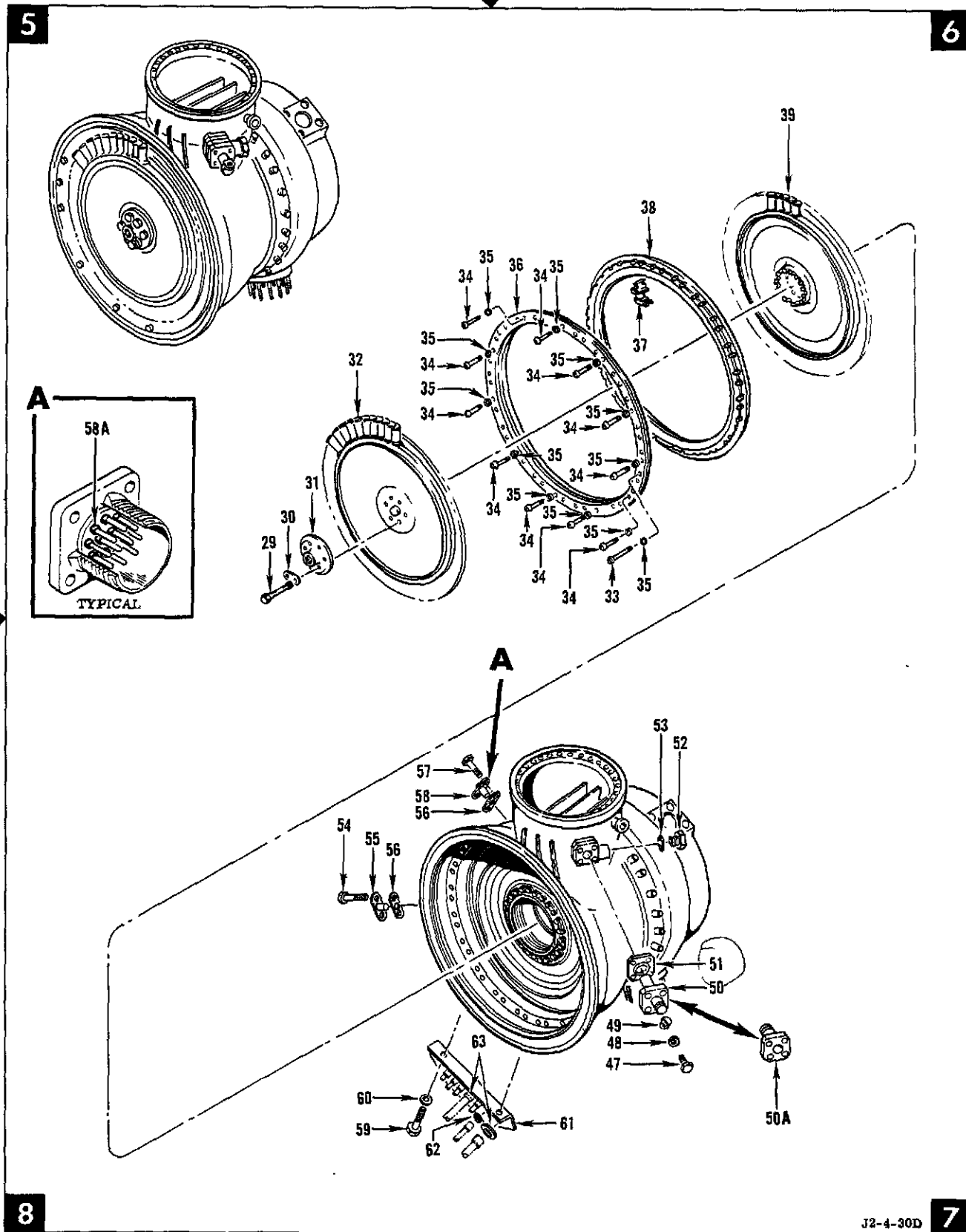


Figure 20. Oxidizer Turbopump Assembly (Sheet 2 of 2)

FIG. & INDEX NO.	ZONE NO.	PART NUMBER	DESCRIPTION	UNITS PER ASSY			USABLE ON CODE
			1 2 3 4 5 6 7				
20-		458175-81 (a)	TURBOPUMP ASSY, Oxidizer (May replace 458175-71, -111, ... -151, and -171 for spares) (NHA 406651, 410375, or 410375-11) (See figure 14, index 262, for REQMT)	REF	REF		EZC
		458175-111 (a)	TURBOPUMP ASSY, Oxidizer (May replace 458175-71, -81, -151, ... and -171 for spares) (NHA 410375-21) (See figure 14, index 262, for REQMT)		REF		JRB
		458175-151 (a)	TURBOPUMP ASSY, Oxidizer (May replace 458175-71, -81, and -171 .. for spares) (NHA 410375-41, -71, -81, -91, or -121) (See figure 14, index 262, for REQMT)		REF	REF	MXC
		458175-161 (a)	TURBOPUMP ASSY, Oxidizer (NHA 410375-51, -101, or -111) (See figure 14, index 262, for REQMT)			REF	JWE
		458175-221 (a)	TURBOPUMP ASSY, Oxidizer (Field configuration for 458175-81 incorporating MD377, MD378, or MD379 change) (See figure 14, index 262, for REQMT)	REF	REF		QSB/QTB
		458175-231 (a)	TURBOPUMP ASSY, Oxidizer (Field configuration for 458175-111 incorporating MD377, MD378, or MD379 change) (See figure 14, index 262, for REQMT)		REF		QUB
		458175-241 (a)	TURBOPUMP ASSY, Oxidizer (Field configuration for 458175-151 incorporating MD377, MD378, or MD379 change) (See figure 14, index 262, for REQMT)		REF	REF	QUB
		458175-251 (a)	TURBOPUMP ASSY, Oxidizer (Field configuration for 458175-161 incorporating MD377, MD378, or MD379 change) (See figure 14, index 262, for REQMT)			REF	QUB
		458175-301	TURBOPUMP ASSY, Oxidizer (Field configuration for 458175-71 incorporating MD378 change) (See figure 14, index 262, for REQMT)	REF			QTB
			PARTIAL BREAKDOWN FOLLOWS				
- 1	4	RD111-1010-3413	. BOLT	10	10	10	
- 2	4	458157-3	. TAB, Lock, oxidizer carrier bolt	5	5	5	
- 3	4	458156	. RING, Restraining, oxidizer inducer shroud	1	1	1	
- 4	4	458154	. SHROUD, Inducer, oxidizer pump	1	1	1	
- 5	4	RD111-1010-3410	. BOLT	20	20	20	
- 6	3	458157-5	. TAB, Lock, oxidizer carrier bolt	8	8	8	
- 7	4	458157-7	. TAB, Lock, oxidizer carrier bolt	2	2	2	
- 8	3	458209	. RETAINER, Oxidizer inducer shroud carrier	4	4	4	
		459504	. CARRIER ASSY, Oxidizer inducer shroud	1	1	1	
- 9	3	KN428T-DFP	. INSERT (MFD by 29372)	20	20	20	
- 9A	3	RD122-3001-1306	. PIN	8	8	8	
- 9B	3	459504-5	. CARRIER, Oxidizer inducer shroud	1	1	1	
-10	3	458223	. RING, Seal carrier piston	1	1	1	
-11	3	458160	. NUT, Retaining, oxidizer impeller inlet seal	1	1	1	
-12	4	458159	. LOCKRING, Nut, oxidizer impeller inlet seal	1	1	1	
-13		458654	. SEAL ASSY, Impeller inlet, oxidizer	1	1	1	
-14							
THRU							
-16		DELETED					
-17	1	458265	. BOLT, Inducer oxidizer	1	1	1	
-18	2	458208	. WASHER, Lock, oxidizer inducer bolt	1	1	1	
-19	2	458205	. INDUCER, Oxidizer	1	1	1	
-20	3	458293	. IMPELLER, Oxidizer	1	1	1	
-21	1	458422	. NUT, Retaining, impeller seat, outlet, side	1	1	1	
-22	1	458421	. LOCKRING, Nut, oxidizer pump	1	1	1	
-23	1	458425	. SEAL ASSY, Impeller outlet oxidizer	1	1	1	
-24							
THRU							
-28		DELETED					
-29	5	RD111-1016-3544	. BOLT	6	6	6	
-30	5	458238	. LOCK, Tab, bolt, turbine wheel, oxidizer	3	3	3	
-31	5	459510	. ADAPTER, Accessory drive	1	1	1	
-32	5	458235-21	. WHEEL ASSY, Turbine, 2nd stage (Welded)	1	1		
-32	5	459875	. WHEEL ASSY, Turbine, 2nd stage (Welded)			1	
-33	6	RD111-3002-7428	. BOLT	34	34	34	
-34	5,6	RD111-3002-7420	. BOLT	11	11	11	
-35	5,6	458270	. WASHER, Mounting ring, oxidizer	45	45	45	
-36	6	458242	. RING ASSY, Clamp, turbine stator (Welded)	1	1	1	
-37	6	458240	. BLADE ASSY, Stator, turbine, oxidizer (Welded)	113	113		
-37	6	459871	. BLADE ASSY, Stator, turbine, oxidizer (Welded)			113	
-38	6	458241	. RING ASSY, Mounting, turbine stator (Welded)	1	1		
-39	6	458230-11	. WHEEL ASSY, Turbine, 1st stage (Welded)	1			
-39	6	459863	. WHEEL ASSY, Turbine, 1st stage (Welded)		1		
-39	6	459870	. WHEEL ASSY, Turbine, 1st stage (Welded)			1	
-40							
THRU							
-46		DELETED					
			(a) For interchangeability status, refer to the Component Interchangeability List.				

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FIG. & INDEX NO	ZONE NO.	PART NUMBER	DESCRIPTION	UNITS PER ASSY			USABLE ON CODE
			1 2 3 4 5 6 7				
20-47	8	RD111-1009-3411	. BOLT	4	4	4	
-48	8	LD153-0013-0002	. WASHER	4	4	4	
-49	8	RD191-4002-1005	. LUG	1	1	1	
-50	7	NA5-27323T3	. TRANSDUCER, Temperature, resistance-type, for hot-gas service (Oxidizer turbine inlet) (Tap TGT3) (Alternate NA5-27323T6) (J127)	1	1		KYE
-50		NA5-27323T6 (a)	. TRANSDUCER, Temperature, resistance type, for hot gas (Oxidizer turbine inlet) (Tap TGT3) (J127)	1	1		LKC
-50A	7	704473	. DUMMY ASSY, Temperature, transducer			1	PUA
-51	7	404681	. SEAL, Instrumentation, pressure-actuated, hot gas	1	1		JP
-51	7	459721 (a)	. SEAL, Pressure-actuated, instrumentation, hot gas			1	JYA
-52	8	RD273-1020-1002	. PLUG AND BLEEDER	1	1	1	
-53	8	RD261-6001-0001	. GASKET	1	1	1	
-54	7	RD111-3006-4207	. BOLT	2	2	2	
-55	7	NA5-27325T1	. TRANSDUCER, Temperature, resistance type, bearing coolant temperature (Tap POT4) (J162)	1	1	1	
-56	7	404664	. SEAL ASSY, Static, spacer type	2	2	2	
-57	7	RD111-3006-4209	. BOLT	2	2	2	
-58	7	NA5-27382	. TRANSDUCER, Speed-sensing dual element (Oxidizer turbopump speed transducer) (J113)	1	1	1	
-58A	5	RD421-5001-0016	. INSULATOR	4	4	4	
-59	8	RD111-1011-0811	. BOLT	2	2	2	
-60	8	LD153-0013-0002	. WASHER	2	2	2	
-61	8	456291-21	. BRACKET ASSY, Tubing, oxidizer (Welded)	1	1	1	
-62	8	456289-5	. GROMMET, Bracket, oxidizer	5	5	5	
-63	8	456289-7	. GROMMET, Bracket, oxidizer	2	2	2	
			(a) For interchangeability status, refer to the Component Interchangeability List.				

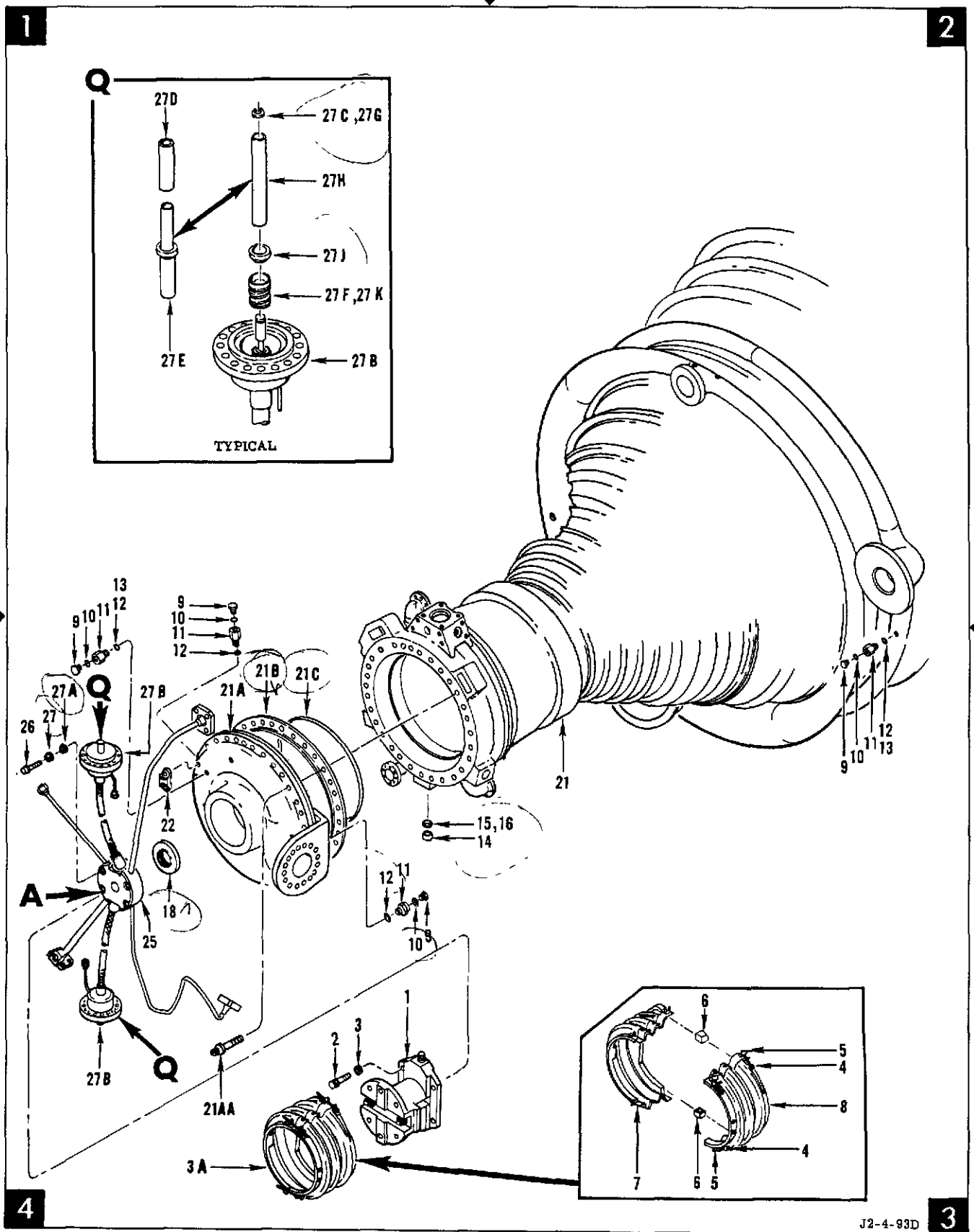


Figure 21. Thrust Chamber and Gimbal Installation (Sheet 1 of 5)

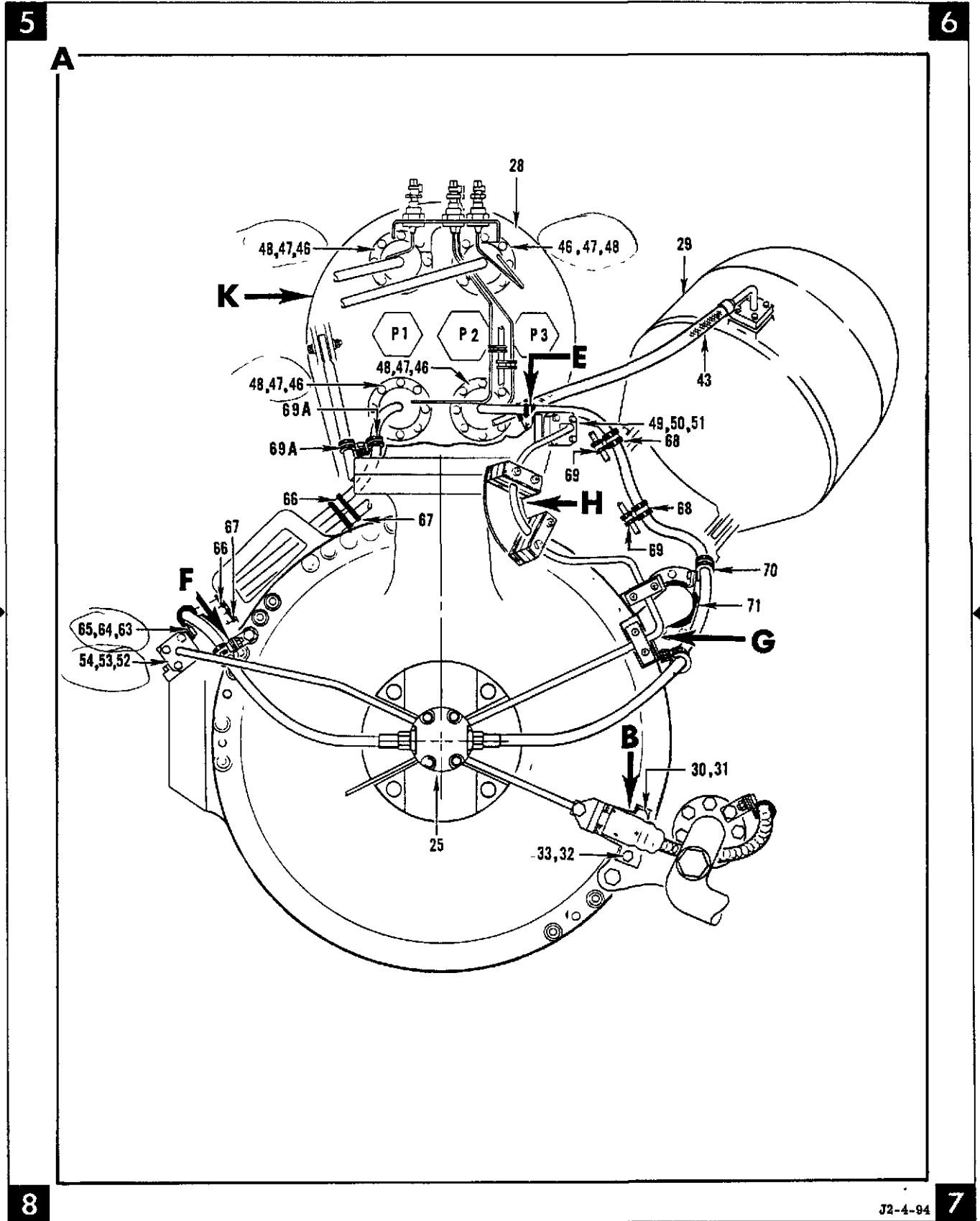
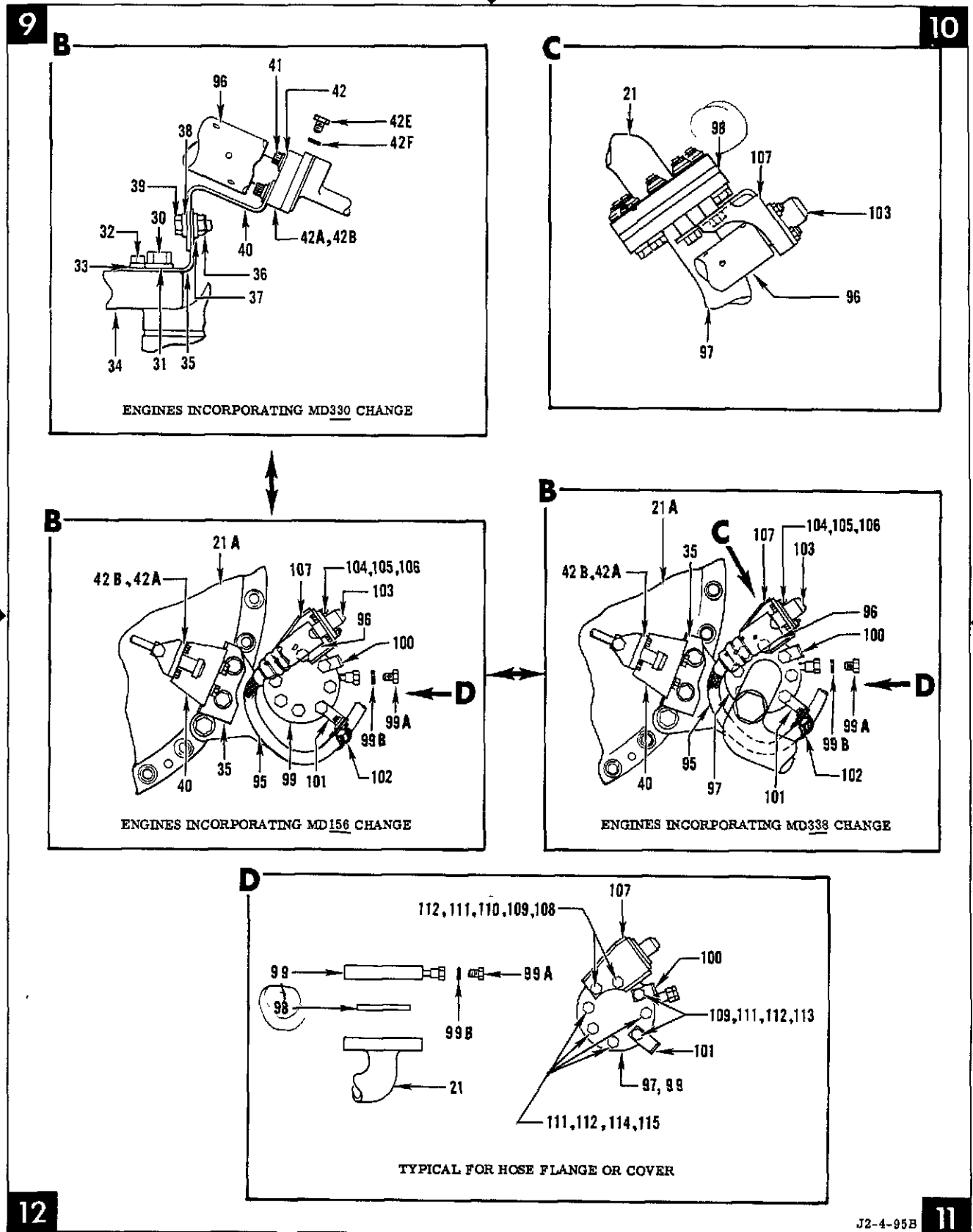


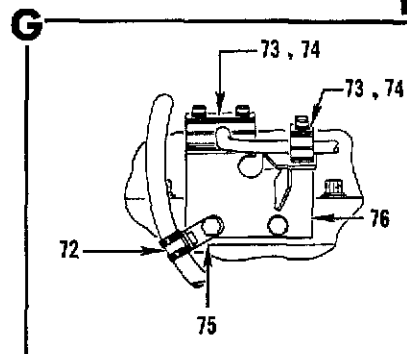
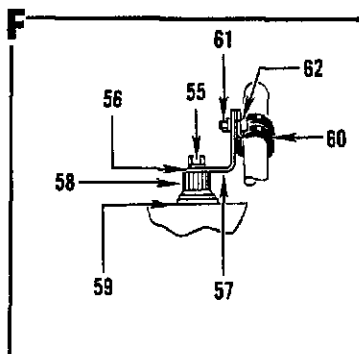
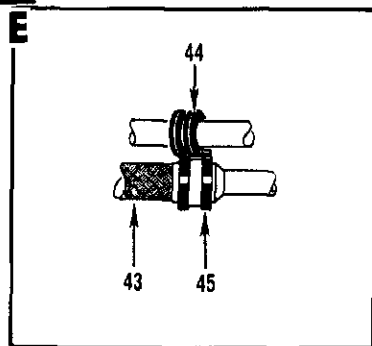
Figure 21. Thrust Chamber and Gimbal Installation (Sheet 2 of 5)



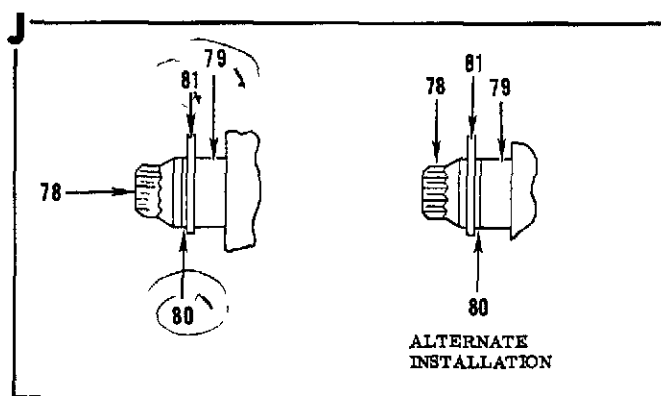
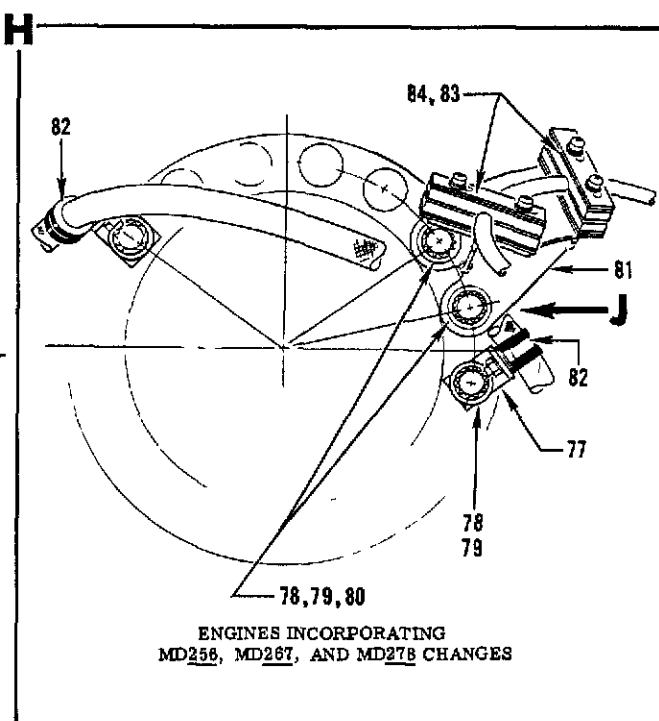
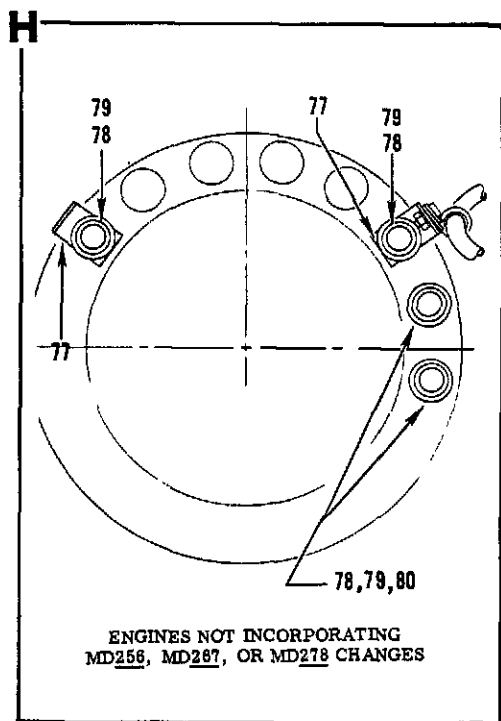
J2-4-95B

Figure 21. Thrust Chamber and Gimbal Installation (Sheet 3 of 5)

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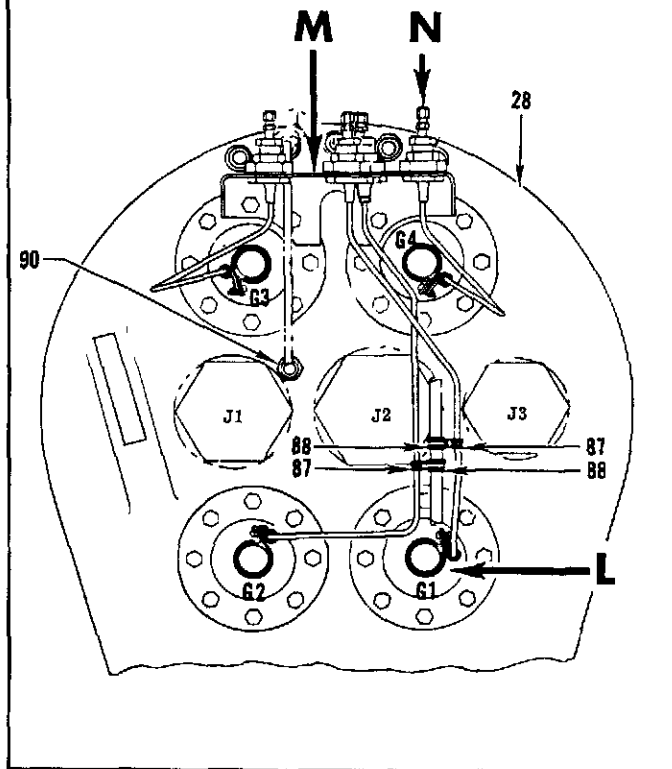
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Figure 21. Thrust Chamber and Gimbal Installation (Sheet 4 of 5)

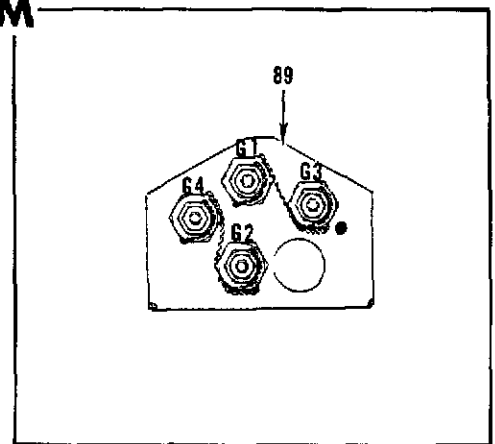
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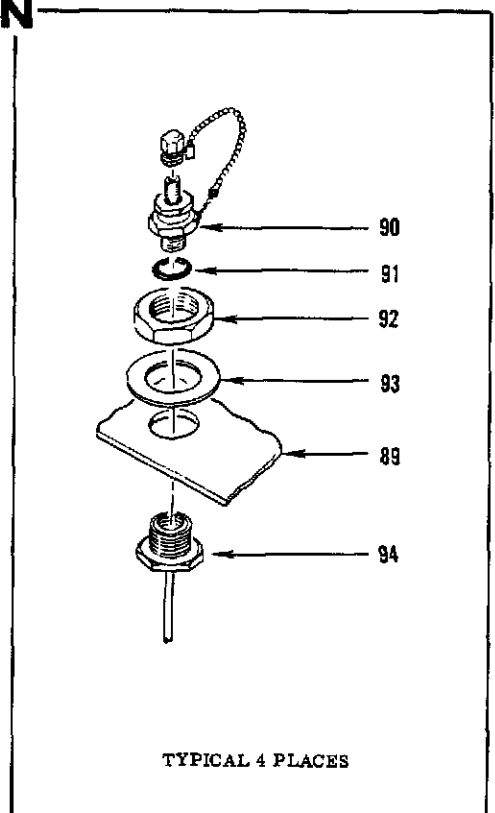


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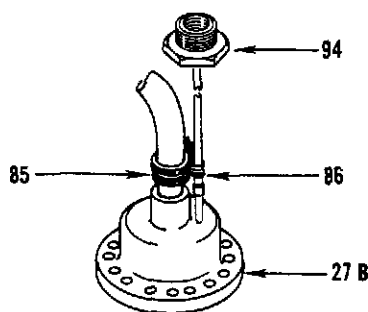
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TYPICAL 4 PLACES

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Figure 21. Thrust Chamber and Gimbal Installation (Sheet 5 of 5)

Section II
Thrust Chamber

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FIG & INDEX NO.	ZONE NO	PART NUMBER	DESCRIPTION							UNITS PER ASSY.	USABLE ON CODE
			1	2	3	4	5	6	7		
21-		206276	THRUST CHAMBER AND GIMBAL INSTL (Engines incorporating MD328, ... MD329, MD330, MD331, MD332, MD344, and MD345 changes) (See figure 1, index 4, for REQMT)							REF	
- 1	4	208883-21 (a)	GIMBAL ASSY, Spherical thrust chamber							1	
- 1	4	208883-41	GIMBAL ASSY, Spherical thrust chamber							1	
- 2	4	RD111-4008-7222	BOLT (AP)							4	
- 3	4	250839	WASHER, Spherical gimbal (AP)							4	
- 3A	4	NA5-260235	BOOT ASSY, Gimbal							1	
- 4	3	712434-7	SCREW, Cap (MFD by 70628)							4	
- 5	3	71240704-1	TRUNNION (MFD by 70628)							4	
- 6	3	71243406-1	SEAL, Nut (MFD by 70628)							2	
- 7	3	712434-5	BOOT, Half (MFD by 70628)							1	
- 8	3	712434-3	BOOT, Half (MFD by 70628)							1	
- 9	3,4	RD273-1020-1002	PLUG AND BLEEDER							5	
-10	3,4	RD261-6001-0001	GASKET							5	
-11	3,4	RD265-3009-0002	PLUG							5	
-12	3,4	404659	SEAL, Pressure-actuated							5	
-13	3,4	408767 (a)	SEAL, Pressure-actuated, cryogenic							2	JP JYA
-14	4	RRN137SP	RING, Retaining (MFD by 80756)							1	
-15		HUDL15-101SS3	BEARING (MFD by 81629) (Alternate AWDL15-101SS3 MFD by 11825)							1	CF ERA
-16	4	RE131-5001-1010	BEARING							1	
-17		DELETED									
-18	4	410879	SEAL, Pressure-actuated, cryogenic							1	
-19		DELETED									
-20		DELETED									
-21	3,10,12	206606-131	THRUST CHAMBER ASSY (Brazed) (Replaces 206606-51)							1	FSB
-21	3,10,12	206606-141	THRUST CHAMBER ASSY (Brazed) (Replaces 206606-11)							1	GTB
-21	3,10,12	206606-151	THRUST CHAMBER ASSY (Brazed) (Replaces 206606-71)							1	JTB
-21	3,10,12	206606-81	THRUST CHAMBER ASSY (Brazed)							1	JYB
-21	3,10,12	206606-161	THRUST CHAMBER ASSY (Brazed) (Replaces 206606-81)							1	PHC
-21	3,10,12	206606-101	THRUST CHAMBER ASSY (Brazed)							1	JWB
-21	3,10,12	206606-111	THRUST CHAMBER ASSY (Brazed)							1	KXA
-21A	4,9,10	208021-11	INJECTOR ASSY, Thrust chamber, fuel face cooled (Welded)							1	
-21AA	4	RD111-4008-6808	BOLT (AP)							44	
		RD111-4020-3819	BOLT (AP)							1	
		LD153-0013-0006	WASHER (AP)							45	
-21B	4	404656-87	SEAL, Pressure-actuated							1	JP JYA
-21C	4	459764-3 (a)	SEAL, Pressure-actuated, cryogenic							1	
-21D	4	19-404635-1	SEAL, O-ring, metal							1	
-22	4	703093	MOUNT, Accelerometer, dome							1	
		RD111-4008-6814	BOLT (AP)							2	
-23		DELETED									
-24		DELETED									
-25	4,8	309360-51	SPARK ASSY, Igniter, augmented (Welded) (ASI) (Alternates 309360-61, or -81)							1	NRB PHA
-25	4,8	309360-71 (a)	SPARK ASSY, Igniter, augmented (Welded) (ASI) (Alternate 309360-81)							1	
-26	4	RD111-3004-5414	BOLT (AP)							4	
-27	4	LD153-0013-0002	WASHER (AP)							4	
-27A	4	LD153-0010-0011	WASHER (AP)							4	
-27B	1,4,20	651390	PARTIAL BREAKDOWN FOLLOWS SPARK IGNITER AND CABLE ASSY (Augmented spark igniter cable) (NHA 309360-51)							2	
-27B	1,4,20	NA5-27448T1	SPARK IGNITER AND CABLE ASSY, Integral high voltage surface gap. (Augmented spark igniter cable) (NHA 309360-71)							2	
-27C		7604	PARTIAL BREAKDOWN FOLLOWS WASHER (MFD by 81482) (NHA 651390)							1	
-27D		51238	CONNECTOR (MFD by 81482) (NHA 651390)							1	
-27E		61595	GROMMET SLEEVE (MFD by 81482) (NHA 651390)							1	
-27F		7612	SPRING ASSY (MFD by 81482) (NHA 651390)							1	
-27G	1	12553	RING, Retaining (MFD by 83311) (NHA NA5-27448T1) (Alternate MS16624-18)							1	
-27H	1	70500	INSULATOR (MFD by 83311) (NHA NA5-27448T1)							1	
-27J	1	14277	GROMMET (MFD by 83311) (NHA NA5-27448T1)							1	
-27K	1	74789	SPRING ASSY (MFD by 83311) (NHA NA5-27448T1)							1	

THE FOLLOWING HARDWARE IS REQUIRED FOR INSTALLATION OF THE AUGMENTED SPARK IGNITER (ASI) AND OTHER RELATED HARDWARE. ALL ITEMS ARE INDENTED ONE ADDITIONAL COLUMN TO THE RIGHT FOR THIS PURPOSE.											

-28	6,17	502670-181, 251, 261	CONTROL ASSY, Electrical (See figure 2, index 55 for REQMT)							REF	
-29	6	703685	PACKAGE ASSY, Flight instrumentation, primary (See figure 32 for REQMT).							REF	
-29	6	704095	PACKAGE ASSY, Flight instrumentation, primary (See figure 32 for REQMT).							REF	
(a) For interchangeability status, refer to the Component Interchangeability List.											

FIG & INDEX NO.	ZONE NO.	PART NUMBER	DESCRIPTION	UNITS PER ASSY	USABLE ON CODE
			1 2 3 4 5 6 7		
21-30	7, 9	RD111-1009-3622	BOLT	1	
-31	7, 9	704751-3	WASHER, Increased "O" DIA. (See figure 2, index 68, for REQMT)	REF	
-32	7, 9	RD111-1009-3406	BOLT	1	
-33	7, 9	704751	WASHER, Increased "O" DIA. (See figure 2, index 70, for REQMT)	REF	
-34	9	106468	CLEVIS, Brace support (See figure 27, index 82, for REQMT)	REF	
-35	9, 10, 12	558488	SUPPORT, Ignition detector probe, lower (See figure 2, index 72, for REQMT)	REF	
-36	9	NAS879C4W	NUT	2	
-37	9	704751	WASHER, Increased "O" DIA. (See figure 2, index 74, for REQMT)	REF	
-38	9	704751	WASHER, Increased "O" DIA. (See figure 2, index 75, for REQMT)	REF	
-39	9	RD111-1010-3410	BOLT	2	
-40	9, 11, 12	558489	SUPPORT, Ignition detector probe, upper (See figure 2, index 77, for REQMT)	REF	
-41	9	RD111-4008-6407	BOLT	4	
-42	9	LD153-0013-0002	WASHER	2	
-42A	9, 10	500750 (a)	PROBE, Ignition detector (Welded) (See figure 2, index 78, for REQMT) (J19).	REF	
-42B	9, 10	408767-5	SEAL, Pressure-actuated, cryogenic (Used with 500750) (See figure 2, index 80, for REQMT)	REF	
-42C		DELETED			
-42D		DELETED			
-42E	9	RD273-1020-1002	PLUG AND BLEEDER	1	
-42F	9	RD261-6001-0001	GASKET	1	
-43	8, 13	NA5-260045	HOSE ASSY, Helium, accumulator (Welded) (See figure 3, index 17, for REQMT)	REF	
-44	13	RE127-2005-0013	CLAMP	1	
-45	13	RE127-2005-0014	CLAMP	1	
		NAS1101C3-10	SCREW (AP)	1	
		NAS879C3W	NUT (AP)	1	
-46	5, 6	RD262-4006-0225	O-RING (See figure 2, index 38, for REQMT)	REF	
-47	5, 6	RD111-1009-8310	BOLT, ASI line flange (AP)	4	
-48	5, 6	LD153-0013-0001	WASHER, ASI line flange (AP)	4	
-49	6	459765	SEAL, Pressure-actuated, cryogenic	1	
-50	6	RD111-1009-3416	BOLT, ASI line flange (AP)	4	
-51	6	LD153-0013-0002	WASHER, ASI line flange (AP)	4	
-52	8	459767	SEAL, Pressure-actuated, cryogenic	1	
-53	8	RD111-4008-6408	BOLT, ASI line flange (AP)	4	
-54	8	LD153-0013-0002	WASHER, ASI line flange (AP)	4	
-55	13	RD111-1009-3406	BOLT	1	
-56	13	LD153-0013-0002	WASHER	1	
-57	13	502833-13	BRACKET, Harness support	1	
-58	13	RD111-4020-3819	BOLT	1	
-59	13	LD153-0013-0006	WASHER	1	
-60	14	RE127-2005-0014	CLAMP (May be substituted for by RE127-2005-0012)	1	
-61	14	NAS1101C3-8	SCREW	1	
-62	14	NAS879C3W	NUT	1	
-63	8	RD111-1009-3307	BOLT	1	
-64	8	RD153-1002-0003	WASHER	1	
-65	8	RE127-2005-0014	CLAMP (May be substituted for by RE127-2005-0012)	1	
-66	5	RE127-2005-0014	CLAMP (May be substituted for by RE127-2005-0012)	2	
-67	5	RE127-2005-0006	CLAMP	2	
		NAS1101C3-10	SCREW (AP)	1	
		NAS879C3W	NUT (AP)	1	
-68	6	RE127-2005-0014	CLAMP (May be substituted for by RE127-2005-0012)	2	
-69	6	RE127-2005-0004	CLAMP	2	
		NAS1101C3-10	SCREW (AP)	1	
		NAS879C3W	NUT (AP)	1	
-69A	5	RE127-2005-0014	CLAMP	2	
		NAS1101C3-10	SCREW (AP)	1	
		NAS879C3W	NUT (AP)	1	
-70	6	RE127-2005-0014	CLAMP (May be substituted for by RE127-2005-0012)	1	
-71	6	RE127-2005-0024	CLAMP	1	
		NAS1101C3-10	SCREW (AP)	1	
		NAS879C3W	NUT (AP)	1	
-72	14	RE127-2005-0014	CLAMP (May be substituted for by RE127-2005-0012)	1	
		NAS1101C3-8	SCREW (AP)	1	
		NAS879C3W	NUT (AP)	1	
-73	14	406367	CLAMP, Adjustable, oxidizer line, augmented spark igniter	1	
-74	14	406368	SHIM, Oxidizer line, augmented spark igniter	8	
		NAS1101C3-26	SCREW (AP)	2	
-75	14	LD153-0010-0008	WASHER (AP)	2	
-76	14	MS9102-51	BRACKET	1	
		406382	SUPPORT ASSY, Augmented spark igniter, oxidizer	1	
-77	13, 15	502833-29	BRACKET, Harness support	1	
-78	13, 15	405856	BOLT, External wrenching, main LOX valve outlet (See figure 14, index 83, for REQMT)	REF	
-79	13, 15	405857	WASHER, Countersunk, thrust chamber, LOX inlet (See figure 14, index 65, for REQMT)	REF	
	16				

(a) For interchangeability status, refer to the Component Interchangeability List.

Section II
Thrust Chamber

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FIG & INDEX NO	ZONE NO	PART NUMBER	DESCRIPTION							UNITS PER ASSY.	USABLE ON CODE
			1	2	3	4	5	6	7		
21-80	15, 16	RD153-5004-0009	.	.	WASHER (May be substituted for by LD153-0013-0007)	.	.	.	.	2	
-81	14, 15	409820	.	.	SUPPORT ASSY, Augmented spark igniter, oxidizer (Welded)	.	.	.	.	1	
-82	16										
-82	14	RE127-2005-0007	.	.	CLAMP	.	.	.	.	2	
		NAS1101C3-10	.	.	SCREW (AP)	.	.	.	.	2	
		NAS679C3W	.	.	NUT (AP)	.	.	.	.	2	
-83	14	406367	.	.	CLAMP, Adjustable oxidizer line, augmented spark igniter	.	.	.	.	4	
-84	14	406368	.	.	SHIM, Oxidizer line, augmented spark igniter	.	.	.	.	8	
		NAS1101C3-26	.	.	SCREW (AP)	.	.	.	.	2	
		LD153-0010-0008	.	.	WASHER (AP)	.	.	.	.	2	
		NAS679C3W	.	.	NUT (AP)	.	.	.	.	2	
-85	20	RE127-2004-0014	.	.	CLAMP (May be substituted for by RE127-2004-0008)	.	.	.	.	4	
-86	20	RE127-2004-0002	.	.	CLAMP	.	.	.	.	4	
		NAS1101C3-10	.	.	SCREW (AP)	.	.	.	.	1	
		LD153-0013-0001	.	.	WASHER (AP)	.	.	.	.	1	
		NAS679C3W	.	.	NUT (AP)	.	.	.	.	1	
-87	17	RE127-2004-0002	.	.	CLAMP	.	.	.	.	REF	
-88	17	RE127-2005-0004	.	.	CLAMP (See figure 2, index 59B, for REQMT)	.	.	.	.	REF	
		NAS1101C3-10	.	.	SCREW (AP)	.	.	.	.	1	
		LD153-0013-0001	.	.	WASHER (AP)	.	.	.	.	1	
		NAS679C3W	.	.	NUT (AP)	.	.	.	.	1	
-89	18, 19	558121	.	.	BRACKET, Support, schraeder valve (See figure 2, index 64, for REQMT)	.	.	.	.	REF	
		RD111-1009-6310	.	.	BOLT (AP)	.	.	.	.	4	
		LD153-0013-0001	.	.	WASHER (AP)	.	.	.	.	4	
-90	19	558272-41	.	.	VALVE ASSY, Air filler (Pressurizing valve) (Altered from	.	.	.	.	REF	
			.	.	RD284-1001-0002) (Replaces 558272-31) (See ECP J2-711) (See	.	.	.	.		
			.	.	figure 2, index 60, for REQMT) (See figure 7 for partial breakdown)	.	.	.	.		
-91	19	MS29513-111	.	.	PACKING (See figure 2, index 60A, for REQMT)	.	.	.	.	REF	
-92	19	RD114-1003-1010	.	.	NUT (May be substituted for by RD114-1009-1010) (See figure 2, ...	.	.	.	.	REF	
			.	.	index 61, for REQMT)	.	.	.	.		
-93	19	LD153-0010-0025	.	.	WASHER (See figure 2, index 62, for REQMT)	.	.	.	.	REF	
-94	19, 20	651394	.	.	BOSS ASSY, Pressurizing, spark igniter (Welded)	.	.	.	.	REF	
			.	.	(See figure 2, index 63, for REQMT)	.	.	.	.		
-95	11, 12	502951	.	.	ARMORED HARNESS ASSY, Flexible, engine control (Control system	.	.	.	.	REF	
			.	.	armored harness) (See figure 2, index 18, for REQMT)	.	.	.	.		
-95	11, 12	502951-11	.	.	ARMORED HARNESS ASSY, Flexible, engine control (Control system	.	.	.	.	REF	
			.	.	armored harness) (See figure 2, index 18, for REQMT)	.	.	.	.		
-95	11, 12	503157 (a)	.	.	ARMORED HARNESS ASSY, Flexible, engine control (Control system	.	.	.	.	REF	
			.	.	armored harness) (See figure 28, index 1, for REQMT)	.	.	.	.		
-96	11, 12	501727-131	.	.	PARTIAL BREAKDOWN FOLLOWS	.	.	.	.		
-96	9, 10	503172-131	.	.	PLUG ASSY, Electrical, 14S-6S shell size (Altered from	.	.	.	.	REF	
			.	.	RD414-1009-0014) (P19) (See figure 2, index 26, for REQMT)	.	.	.	.		
-97	10, 11	NA5-26954	.	.	PLUG ASSY, Electrical, 14S-6S shell size (Altered from	.	.	.	.	REF	
			.	.	NA5-27556-T146S) (P19) (See figure 28, index 9, for REQMT)	.	.	.	.		
-97	10, 11	NA5-260124	.	.	HOSE ASSY, Hydrogen tank pressurization (See figure 29, index 48, ...	.	.	.	.	REF	
			.	.	for REQMT) (Except SII center engines)	.	.	.	.		
-97	10, 11	NA5-260164	.	.	HOSE ASSY, Hydrogen tank pressurization (See figure 29, index 48, ...	.	.	.	.	REF	
			.	.	(Except SII center engines)	.	.	.	.		
-97	10, 11	NA5-260164	.	.	HOSE ASSY, Hydrogen tank pressurization (See figure 29, index 48, ...	.	.	.	.	REF	
			.	.	for REQMT) (Except SII center engines)	.	.	.	.		
-98	10, 12	410861	.	.	SEAL, Pressure-actuated, cryogenic (Replaces 404657-27 for spares)	.	.	.	.	REF	
-99	11, 12	106869	.	.	COVER ASSY, Hydrogen tapoff flange	.	.	.	.	1	FMB
-99A	11, 12	RD273-1020-1002	.	.	PLUG AND BLEEDER	.	.	.	.	1	FMB
-99B	11, 12	RD261-6001-0001	.	.	GASKET	.	.	.	.	1	FMB
-100	11, 12	502833-9	.	.	BRACKET, Harness support (Replaces MS9102-51)	.	.	.	.	1	
-101	11, 12	502833-9	.	.	BRACKET, Harness support (See figure 3, index 2, for REQMT)	.	.	.	.	REF	
-102	11, 12	RE127-2005-0010	.	.	CLAMP	.	.	.	.	1	
		NAS1101C3-8	.	.	SCREW (AP)	.	.	.	.	1	
		NAS679C3W	.	.	NUT (AP)	.	.	.	.	1	
-103	9, 10	500525	.	.	DETECTOR ASSY, Ignition, dummy (J19A)	.	.	.	.	1	
-104	9, 10	NAS1101C04-8	.	.	SCREW	.	.	.	.	4	
-105	9, 10	LD153-0010-0002	.	.	WASHER	.	.	.	.	4	
-106	9, 10	NAS679C04W	.	.	NUT	.	.	.	.	4	
-107	9, 10, 11	558486	.	.	BRACKET, Support, dummy ignition detector probe	.	.	.	.	1	
-108	11	RD111-1010-3428	.	.	BOLT	.	.	.	.	2	
-109	11	LD153-0013-0002	.	.	WASHER	.	.	.	.	4	
-110	11	103841	.	.	SPACER	.	.	.	.	2	
-111	11, 12	LD153-0010-0009	.	.	WASHER	.	.	.	.	8	
-112	11, 12	RD114-8005-2004	.	.	NUT	.	.	.	.	6	
-113	11	RD111-1010-3426	.	.	BOLT	.	.	.	.	2	
-114	11	RD111-1010-3423	.	.	BOLT	.	.	.	.	4	
-115	11	RD153-5001-0004	.	.	WASHER	.	.	.	.	4	

(a) For interchangeability status, refer to the Component Interchangeability List.

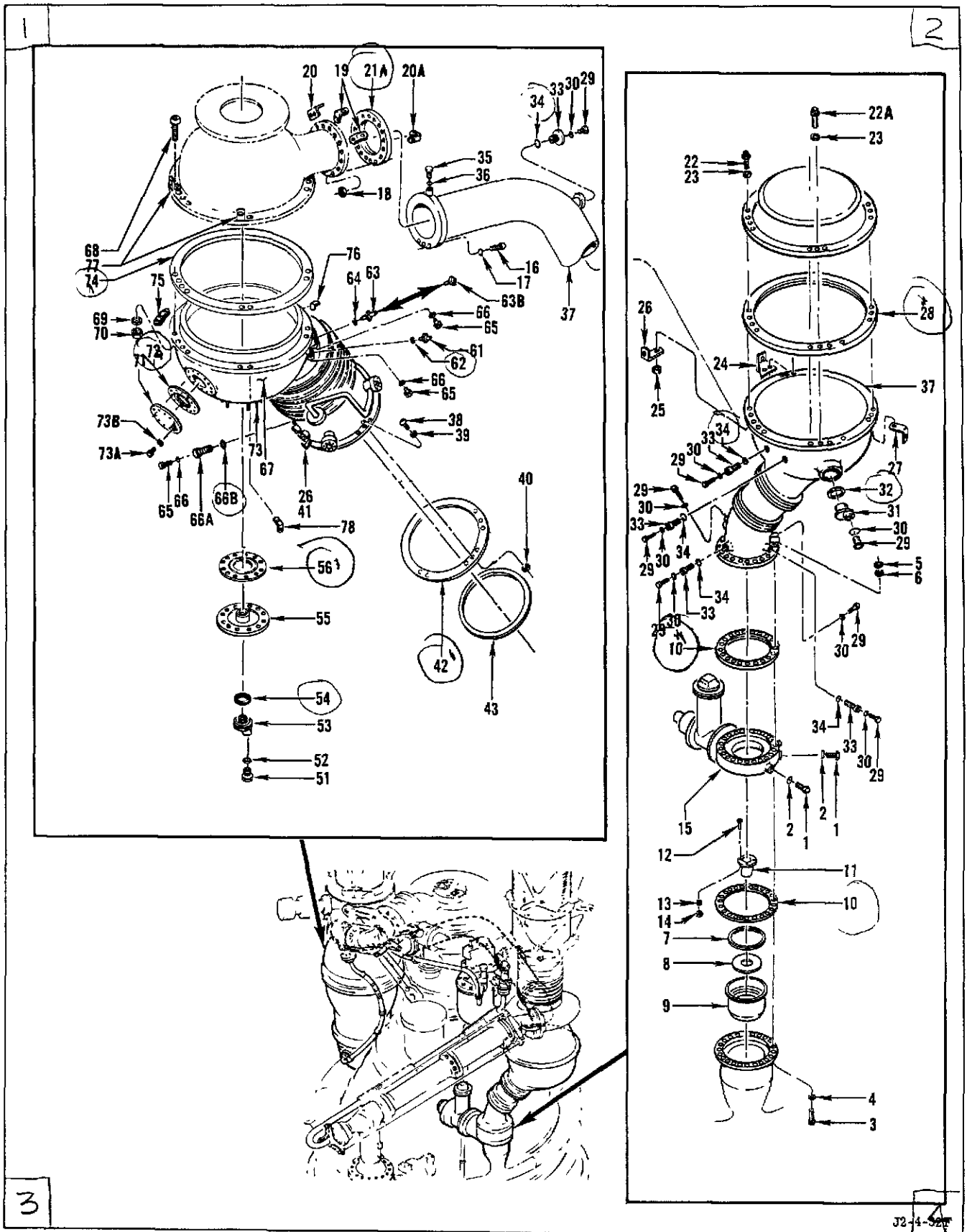


Figure 22. Gas Generator and Exhaust Installation

Gas Generator and Exhaust System

FIG & INDEX NO	ZONE NO	PART NUMBER	DESCRIPTION	UNITS PER ASSY.			USABLE ON CODE
			1 2 3 4 5 6 7				
22-		303926	GAS GENERATOR AND EXHAUST INSTL (See figure 1, index 5, ... for REQMT) (Engines J-2046, J-2056, J-2062) (Engines J-2039-1, J-2075 THRU J-2130) (Engines J-2131 and SUBS)	REF	REF	REF	
- 1		RD273-1020-1002	PLUG AND BLEEDER	2	2	2	
- 2		RD261-6001-0001	GASKET	2	2	2	
- 3		RD111-1010-0440	BOLT	16	16	16	
- 4		LD153-0013-0002	WASHER	16	16	16	
- 5		RD114-8005-0004	NUT	16	16	16	
- 6		RD153-1002-0004	WASHER	16	16	16	
- 7		MS16625-4433	RING	1	1	1	
- 8		RD251-4076-XXXX	ORIFICE PLATE (Oxidizer turbine bypass valve orifice plate). (Orifice size determined by calibration tests)	1	1	1	
- 9		307555	RETAINER, Restrictor LOX turbine bypass (Oxidizer turbine bypass valve retainer)	1	1	1	
(10)		404677	SEAL, Bypass line, hot-gas	2	2	2	
(11)		RD273-8002-XXXX	ORIFICE NOZZLE (Oxidizer turbine bypass valve orifice nozzle). (Orifice size determined by calibration tests)	1	1	1	
-12		NAS1102C3-10	SCREW (AP)	4	4	4	
-13		LD153-0010-0007	WASHER (AP)	4	4	4	
-14		NAS679C3W	NUT (AP)	4	4	4	
-15		409930 (a)	VALVE ASSY, Bypass, oxygen turbine (Oxidizer turbine bypass valve) (See figure 23 for breakdown)	1	1		BGC
-15		409940 (a)	VALVE ASSY, Bypass, oxygen turbine (Oxidizer turbine bypass valve) (See figure 23 for breakdown)		1	1	HVA
-16		RD111-4011-0422	BOLT	30	30		
-16		RD111-4011-0422	BOLT			29	NLA
-17		LD153-0013-0002	WASHER	30	30	30	
-18		RD114-8005-0004	NUT	30	30	30	
-19		502833-5	BRACKET, Harness support, LOX pump manifold flange	2	2	2	
-20		502847	BRACKET, Harness support, LOX pump manifold flange	1	1	1	
-20A		MS9103-14	BRACKET			1	NLA
(21)		RD111-4011-0426	BOLT (AP)			1	NLA
(22)		406374	SPACER, Bracket (AP)			1	NLA
(23)		404651-3	SEAL, Pressure-actuated, hot-gas	1	1	1	
(24)		RD111-4011-0421	BOLT	59	59	59	
(25)		RD111-4010-0421	BOLT	1	1	1	
(26)		LD153-0013-0002	WASHER	60	60	60	
(27)		105823	SUPPORT ASSY, Purge manifold (Welded).	1	1	1	
(28)		RD114-8005-0004	NUT	60	60	60	
(29)		502844	BRACKET, Harness support, exhaust collector flange, fuel pump	7	7	7	
(30)		MS9102-12	BRACKET	1	1	1	
(31)		404651-7	SEAL, Pressure-actuated, hot-gas	1	1	1	
(32)		RD273-1020-1002	PLUG AND BLEEDER	8	8	8	
(33)		RD261-6001-0001	GASKET	8	8	8	
(34)		456181	PLUG, Exhaust manifold, port (Fuel turbopump torque access).	1	1	1	
(35)		404654	SEAL, Pressure-actuated, hot-gas	1	1		
(36)		459723 (a)	SEAL, Pressure-actuated, hot-gas			1	
(37)		RD265-3009-0001	PLUG	7	7	7	
(38)		701852	PLUG, Instrumentation, port, vented	1	1	1	
(39)		406346	SEAL, Pressure-actuated, hot-gas	5	5		
(40)		408799 (a)	SEAL, Pressure-actuated, hot-gas			5	
(41)		RD273-1020-1002	PLUG AND BLEEDER	1	1	1	
(42)		RD261-6001-0001	GASKET	1	1	1	
(43)		307714	DUCT ASSY, Exhaust, fuel turbine (Fuel turbopump discharge duct). (Welded)	1	1	1	AUB
(44)		307714-11	DUCT ASSY, Exhaust, fuel turbine (Fuel turbopump discharge duct). (Welded)			1	JWA
(45)		RD111-1010-0422	BOLT	40	40	40	
(46)		LD153-0013-0002	WASHER	40	40	40	
(47)		RD114-8005-0004	NUT	40	40	40	
(48)		MS9102-12	BRACKET	2	2	2	
(49)		404651-5	SEAL, Pressure-actuated, hot-gas	1	1	1	
(50)		RD251-9004-XXXX	ORIFICE PLATE (Heat exchanger duct flange orifice) (Orifice size determined by calibration tests)	1	1	1	
(51)		DELETED					
(52)		RD273-1020-1002	PLUG AND BLEEDER	1	1	1	
(53)		RD261-6001-0001	GASKET	1	1	1	
(54)		456181	PLUG, Exhaust manifold, port	1	1	1	
			(a) For interchangeability status, refer to the Component Interchangeability List.				

Gas Generator and Exhaust System

FIG. & INDEX NO	ZONE NO	PART NUMBER	DESCRIPTION	UNITS PER ASSY.			USABLE ON CODE
			1 2 3 4 5 6 7				
22-54 -54 -55		404654	SEAL, Pressure-actuated, hot-gas	1	1		
		459723 (a)	SEAL, Pressure-actuated, hot-gas			1	
		307679	PLATE, Cover, heat exchanger duct (Oxidizer turbopump accessory drive pad cover plate)	1	1	1	
		RD153-5002-0006	WASHER (AP)	12	12	12	
		RD114-8005-0006	NUT (AP)	12	12	12	
		404651-23	SEAL, Pressure-actuated, hot-gas	1	1		
		459756 (a)	SEAL, Pressure-actuated, hot-gas			1	
-56 -56 -57		DELETED					
THRU		702528	ADAPTER, Flight instrumentation, boss to tube	1	1		
-60		406346	SEAL, Pressure-actuated, hot-gas	1			
-61		408799	SEAL, Pressure-actuated, hot-gas			1	
-62		NA5-27323T3 (a)	TRANSDUCER, Temperature, resistance-type for, hot-gas service (NHA 410375 basic, -11, or -21) (LOX turbine outlet) (Tap TGT4) (Alternate NA5-27323T6) (J128)	1			JRC
-63		DELETED					
-63A		704473	DUMMY ASSY, Temperature transducer	1	1		FRC
-63B		RD111-1009-3411	BOLT (AP)	4	4	4	
		LD153-0013-0002	WASHER (AP)	4	4	4	
-64		404681	SEAL, Pressure-actuated, hot-gas (NHA 410375)	1			
-64		459721 (a)	SEAL, Pressure-actuated, hot-gas (NHA 410375)			1	
-65		RD273-1020-1002	PLUG AND BLEEDER	4	4	4	
-66		RD261-6001-0001	GASKET	4	4	4	
-66A		RD265-3009-0001	PLUG	2	2	2	
-66B		406346	SEAL, Pressure-actuated, hot-gas	2	2		
-66B		408799 (a)	SEAL, Pressure-actuated, hot-gas			2	
-67		307725-41	HEAT EXCHANGER ASSY, LOX turbine, exhaust duct (Welded) (Also a component of 410375 basic and all dash numbers)	1	1	1	AUB
-67		307725-61	HEAT EXCHANGER ASSY, LOX turbine, exhaust duct (Welded) (Also a component of 410375 basic and all dash numbers)			1	JWA
-68		RD111-4008-3415	BOLT (AP)	1			
-68		RD111-4011-0421	BOLT (AP)	67	71	71	
-68		RD111-4010-0421	BOLT (AP)	4	1	1	
-69		RD153-1002-0004	WASHER (AP)	72	72	72	
-70		RD114-8005-0004	NUT (AP)	72	72	72	
-71		308032	COVER, Duct heat exchanger (Oxidizer turbopump torque access cover plate)	1	1	1	
		RD111-3004-7404	BOLT (AP)	12	12	12	
		LD153-0013-0002	WASHER (AP)	12	12	12	
-72		404651-25	SEAL, Pressure-actuated, hot-gas	1	1	1	
-73		KNHS624T19SP	STUD (MFD by 29372)	12	12	12	
-73A		RD273-1020-1002	PLUG AND BLEEDER	1	1	1	
-73B		RD261-6001-0001	GASKET	1	1	1	
-74		404651-9	SEAL, Pressure-actuated, hot-gas	1	1	1	
-75		206292	BRACKET, Hydraulic, line support	1	1	1	
-76		MS9102-51	BRACKET	2	2	2	
-77		502846	BRACKET, Harness support, exhaust collector flange, LOX pump	2	2	2	
-78		502833-13	BRACKET, Harness support, LOX pump manifold flange (NHA 410375-51, -91, -101, -111, and -121)			1	FPD

(a) For interchangeability status, refer to the Component Interchangeability List.

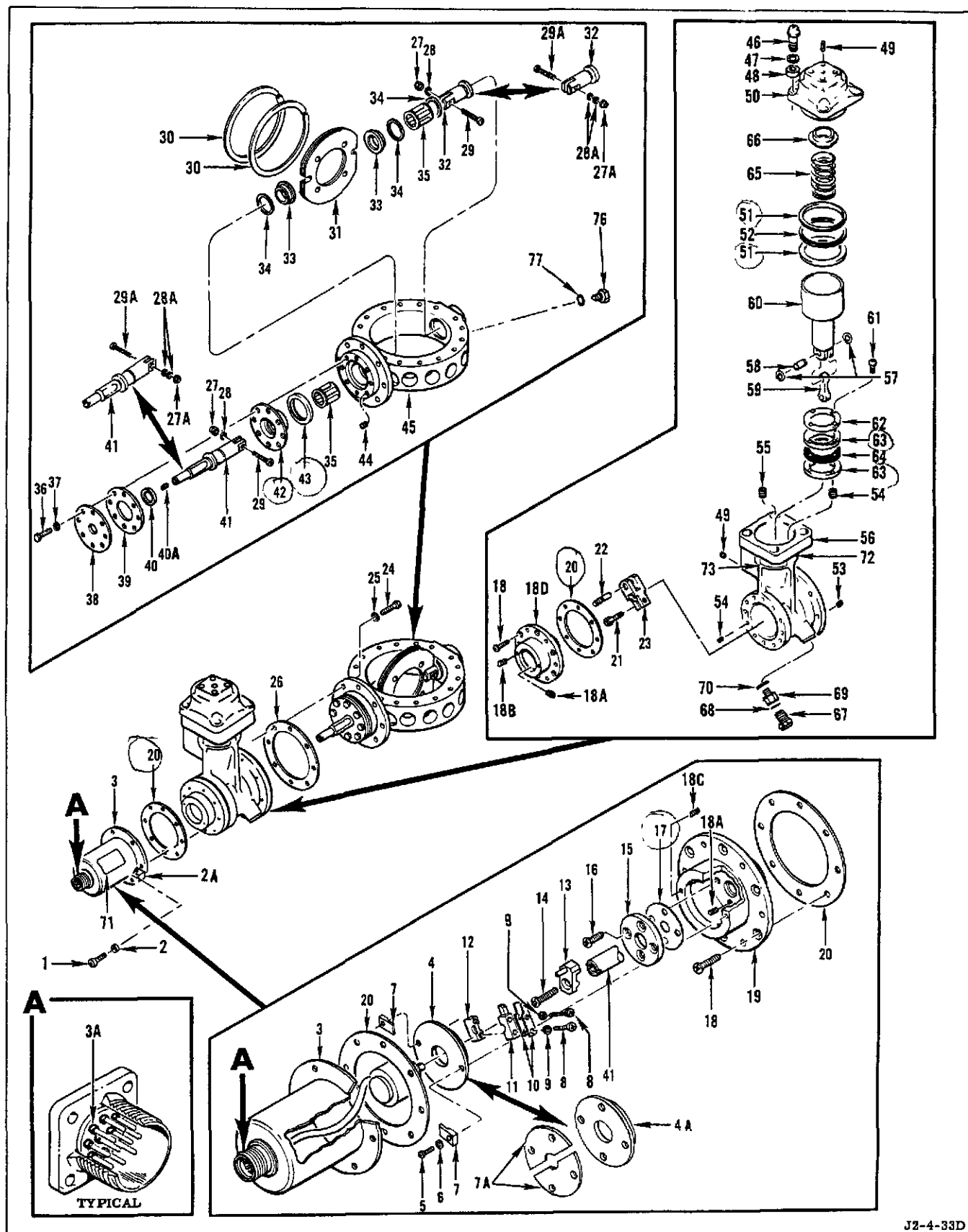


Figure 23. Oxygen Turbine Bypass Valve Assembly (Oxidizer Turbine Bypass Valve)

Gas Generator and Exhaust System

FIG. & INDEX NO.	ZONE NO	PART NUMBER	DESCRIPTION	UNITS PER ASSY		USABLE ON CODE
			1 2 3 4 5 6 7			
23-		409930 (a)	VALVE ASSY, Bypass, oxygen turbine (Oxidizer turbine bypass valve) (See figure 22, index 15, for REQMT)	REF		
		409940 (a)	VALVE ASSY, Bypass, oxygen turbine (Oxidizer turbine bypass valve) (See figure 22, index 15, for REQMT)		REF	
- 1		NAS1101C3-12	SCREW	6	6	
- 2		LD153-0010-0007	WASHER	6	6	
- 2A		RD191-4002-1004	LUG	1	1	
- 3		408012	RESISTOR ASSY, Variable oxidizer turbine bypass valve (Welded) (J117)	1	1	
- 3A		RD421-5001-0016	INSULATOR (NHA 103850)	7	7	
- 4		405820	BASE, Position indicator, main propellant valve	1		
- 4A		409118	BASE, Position indicator, main propellant valve		1	
- 5		NAS1101C06H8	SCREW (AP)	2	4	
- 6		NAS620-6	WASHER (AP)	2	4	
- 7		404580	CLIP, Potentiometer, bracket, main propellant valve	2		
- 7A		409871	CLIP, Potentiometer, main propellant valve		2	
- 8		NAS1101C04H10	SCREW	2	2	
- 9		NAS620-4	WASHER	2	2	
-10		250382	SPRING, 3 IN., propellant control valve, transducer arm	2	2	
-11		251251	ARM, Instrument actuating, propellant control valve	1	1	
-12		251252	CLAMP, Instrument actuating arm, propellant control valve	1	1	
-13		404537	ARM ASSY, Actuator, position indicator propellant valve (Brazed)	1	1	
-14		NAS1102C3-12	SCREW (AP)	1	1	
-15		405912	RETAINER, Seal, oxygen bypass valve	1	1	
-16		NAS1102C3-8	SCREW (AP)	4	4	
-17		405916	SEAL, Lip, oxygen turbine, bypass valve	1	1	
		405914	SWITCH ASSY, Mount oxygen turbine bypass valve (Welded)	1		
		409873	MOUNT ASSY, Switch, bypass valve oxygen turbine (Welded)		1	
-18		NAS1102C3-10	SCREW (AP)	6	6	
-18A		3591-3 CNVX285	INSERT (MFD by 91767)	4	4	
-18B		1185-06 CNVX207	INSERT (MFD by 91767)	2		
-18C		1185-06 CNVX207	INSERT (MFD by 91767)		4	
-18D		405914-3	SWITCH, Mount oxygen turbine bypass valve	1		
-19		409873-3	MOUNT, Switch, bypass valve, oxygen turbine		1	
-20		405913	FLANGE SEAL, Oxygen turbine, bypass valve	2	2	
-21		NAS1224C6L	BOLT	1	1	
-22		9512-48427	PIN, Link	1	1	
-23		405908	LEVER, Oxygen turbine, bypass valve	1		
-23		409863	LEVER, Bypass valve, oxygen turbine		1	
-24		NAS1004-6A	BOLT	8	8	
-25		LD153-0013-0002	WASHER	8	8	
-26		405922	SPACER, Oxygen turbine, bypass valve	1	1	
-27		NAS679C3W	NUT	2		
-27A		NAS679C06	NUT		2	
-28		LD153-0010-0008	WASHER	2		
-28A		LD153-0010-0004	WASHER		4	
-29		405920	BOLT, Oxygen turbine, by pass valve	2		
-29A		409867	BOLT, Bypass valve, oxygen turbine		2	
-30		407167	RING, Gate, oxidizer turbine, bypass valve	2		
-30		409868	RING, Gate, bypass valve, oxygen turbine		2	
-31		407169	GATE, Oxygen turbine, bypass valve	1	1	
-32		408005	SHAFT, Idler, oxygen turbine, bypass valve	1		
-32		409861	SHAFT, Idler, bypass valve, oxygen turbine		1	
-33		407166	SPACER, Oxygen turbine, bypass valve	2		
-33		409860	SPACER, Bypass valve, oxygen turbine		2	
-34		408008	WASHER, Wave, spacer, bypass valve, oxygen turbine	2	3	
-35		AC35237	BEARING (MFD by 60380)	2		
-35		19-409872	BEARING ASSY, Oxygen turbine bypass valve		2	
-36		NAS1191C3-12L	SCREW (NHA 409930)	8		
-36		NAS1003-5H	BOLT (NHA 409940)		8	
-37		LD153-0013-0001	WASHER	8	8	
-38		405850	RETAINER, Oxygen turbine, bypass valve	1		
-38		409865	RETAINER, Bypass valve, oxygen turbine		1	
-39		405849	SHIM, Seal preload, oxygen turbine, bypass valve	1	1	
-40		NTA10188S	BEARING, Thrust (MFD by 60380)	1	1	
		407439	SHAFT ASSY, Oxidizer, turbine bypass valve	1		
		409866	SHAFT ASSY, Bypass valve, oxygen turbine		1	
-40A		3591-3 CNVX285	INSERT (MFD by 91767)	1	1	
-41		407439-3	SHAFT, Oxidizer, turbine bypass valve	1		
-41		409866-3	SHAFT, Bypass valve, oxygen turbine		1	
-42		13-1806	SEAL ASSY, Shaft (MFD by 07107)	1	1	
-43		306064-47	SEAL, Pressure-actuated, hot gas and cold temperature	1	1	
		405925	HOUSING ASSY, Gate, oxygen turbine, bypass valve	1		
		409870	HOUSING ASSY, Gate, bypass valve, oxygen turbine		1	
-44		1191-3 CNVX285	INSERT (MFD by 91767)	8		
-44		1191-3 CNV0285	INSERT (MFD by 91767)		8	

Section II

R-3825-4

Gas Generator and Exhaust System

FIG. & INDEX NO.	ZONE NO.	PART NUMBER	DESCRIPTION							UNITS PER ASSY.	USABLE ON CODE
			1	2	3	4	5	6	7		
23-45		405925-5	.	.	HOUSING, Gate, oxygen turbine, bypass valve	.	.	.	.	1	
-45		409870-5	.	.	HOUSING, Gate, bypass valve, oxygen turbine	.	.	.	.	1	1
		409912	.	.	CAP ASSY, Actuator, oxygen turbine, bypass valve	.	.	.	.	1	1
-46		RD111-4010-3519	.	.	BOLT (AP)	.	.	.	.	4	4
-47		RD153-5002-0005	.	.	WASHER (AP)	.	.	.	.	4	4
-48		409914	.	.	SPACER, Oxygen turbine, bypass valve (AP)	.	.	.	.	4	4
-49		1191-4CNVX375	.	.	INSERT (MFD by 91767)	.	.	.	.	8	8
-50		409912-3	.	.	CAP, Actuator, oxygen turbine, bypass valve	.	.	.	.	1	1
-51		404579	.	.	SEAL, Lip, actuator, small, main propellant valve	.	.	.	.	4	4
-52		408014	.	.	WASHER, Seal, oxygen turbine, bypass valve	.	.	.	.	1	1
		409913	.	.	HOUSING ASSY, Actuator, oxygen turbine, bypass valve	.	.	.	.	1	1
-53		3591-4CNVX375	.	.	INSERT (MFD by 91767)	.	.	.	.	8	8
-54		3591-3CNVX285	.	.	INSERT (MFD by 91767)	.	.	.	.	16	16
-55		1191-5CNVX625	.	.	INSERT (MFD by 91767)	.	.	.	.	4	4
-56		409913-3	.	.	HOUSING, Actuator, oxygen turbine, bypass valve	.	.	.	.	1	1
-57		X5133-31C	.	.	RING (MFD by 79136)	.	.	.	.	2	2
-58		400334	.	.	PIN, Link to piston, main propellant valve	.	.	.	.	1	
-58		409864	.	.	PIN, Link to piston, bypass valve, oxygen turbine	.	.	.	.		1
-59		405909	.	.	LINK, Oxygen turbine, bypass valve	.	.	.	.	1	
-59		409862	.	.	LINK, Bypass valve, oxygen turbine	.	.	.	.		1
-60		409911	.	.	PISTON, Actuator, oxygen turbine, bypass valve	.	.	.	.	1	1
-61		NAS1101C3-8	.	.	SCREW	.	.	.	.	4	4
-62		408013	.	.	RETAINER, Piston rod lipseal, oxygen turbine, bypass valve	.	.	.	.	1	1
-63		405827	.	.	LIPSEAL, Piston rod, main propellant valve	.	.	.	.	4	4
-64		405828	.	.	WASHER, Piston rod lipseal, main propellant valve	.	.	.	.	1	1
-65		408016	.	.	SPRING, Actuator, oxygen turbine, bypass valve	.	.	.	.	1	1
-66		408015	.	.	RETAINER, Spring, oxygen turbine, bypass valve	.	.	.	.	1	1
-67		553364	.	.	VALVE ASSY, Relief, low temperature, 1/4 IN. vent (Alternate 553364-21)	.	.	.	.	1	1
-68		MS29512-04	.	.	PACKING	.	.	.	.	1	1
-69		AN893-3D	.	.	BUSHING	.	.	.	.	1	
-69		409869	.	.	BUSHING, Bypass valve, oxygen turbine	.	.	.	.		1
-70		MS29512-08	.	.	PACKING	.	.	.	.	1	1
-71		405867	.	.	PLATE, Instruction, oxygen turbine, bypass valve	.	.	.	.	1	1
-72		RD171-1020-0001	.	.	NAMEPLATE	.	.	.	.	1	1
-73		RD170-2028-0002	.	.	PLATE	.	.	.	.	1	1
-74		DELETED									
-75		DELETED									
-76		RD273-1020-1002	.	.	PLUG AND BLEEDER	.	.	.	.	REF	REF
-77		RD261-6001-0001	.	.	GASKET	.	.	.	.	REF	REF

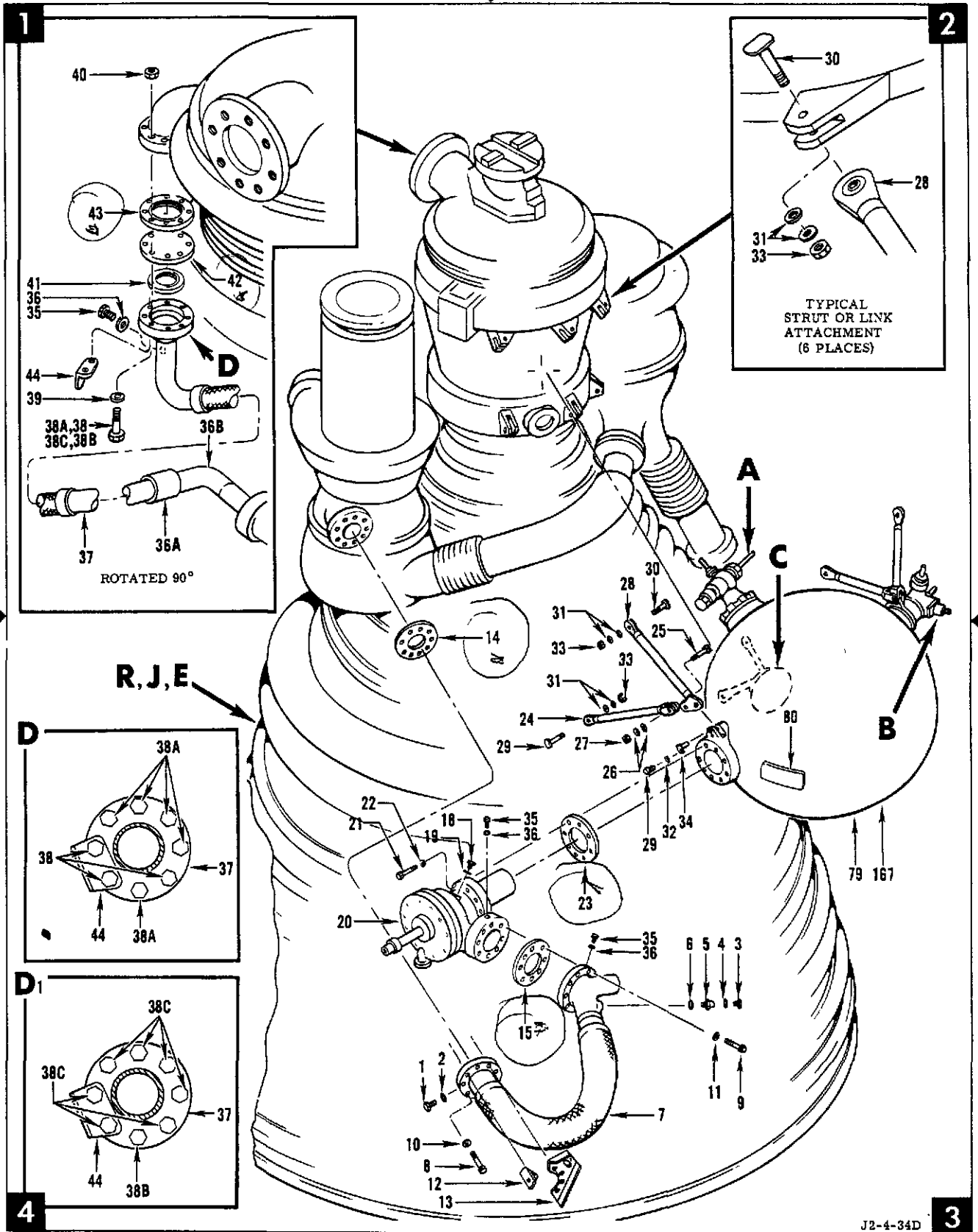


Figure 24. Start System Installation (Sheet 1 of 4)

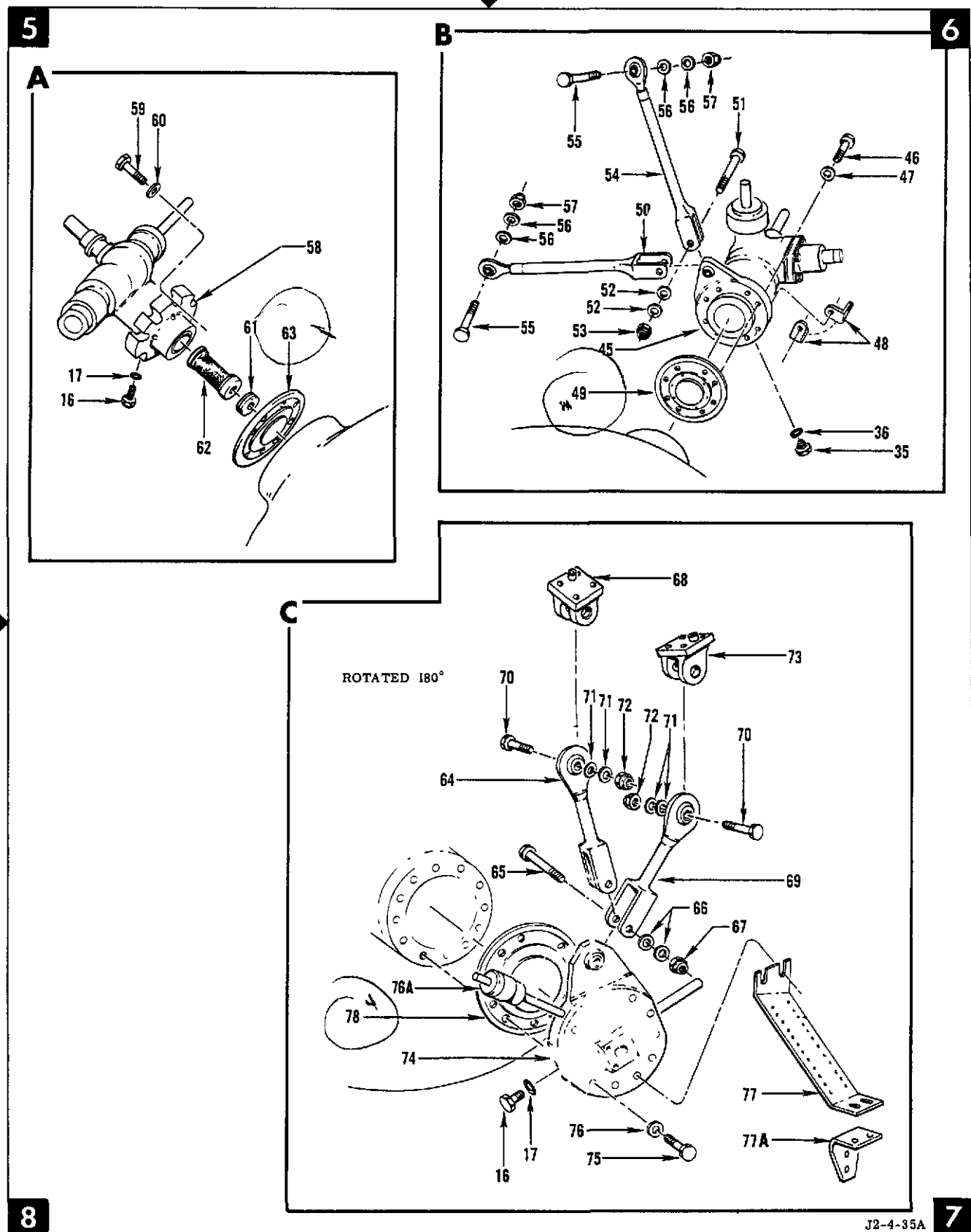
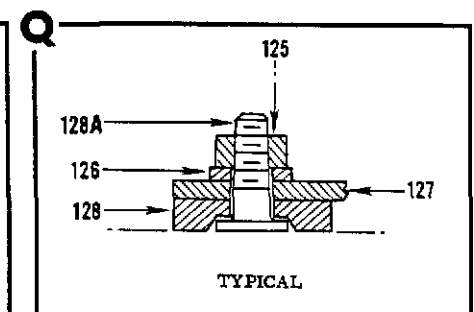
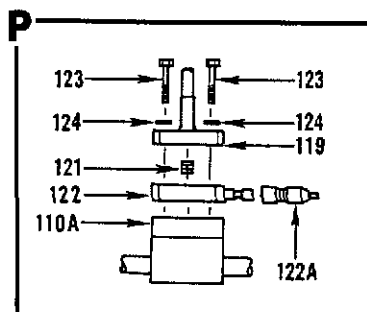
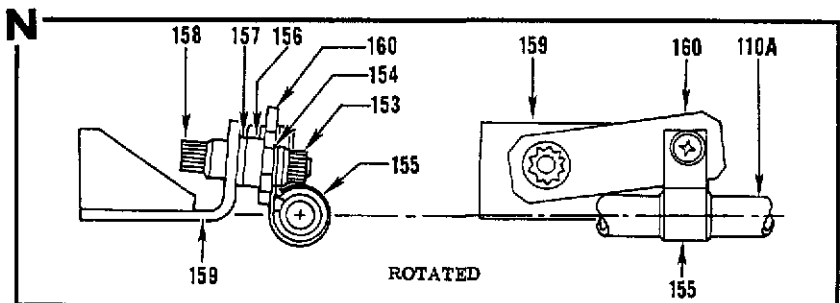
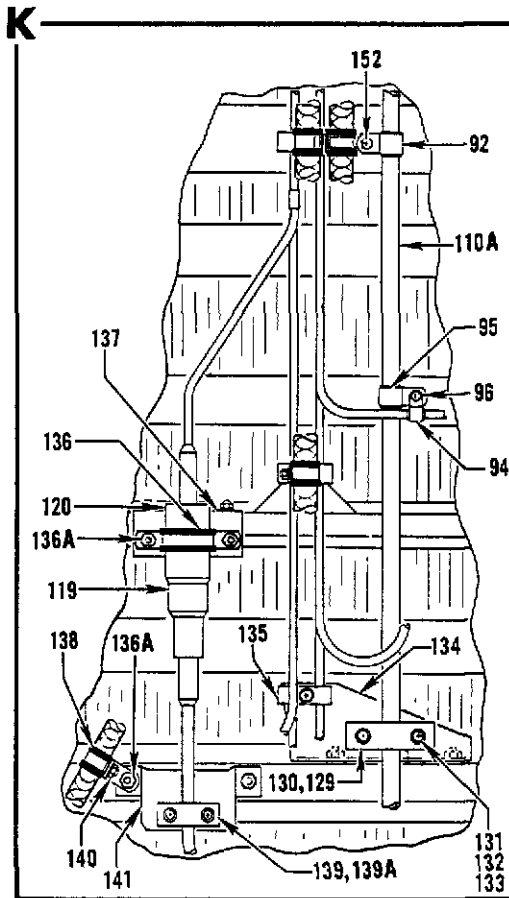
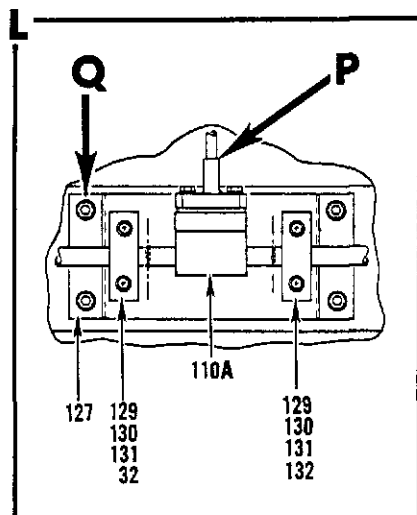
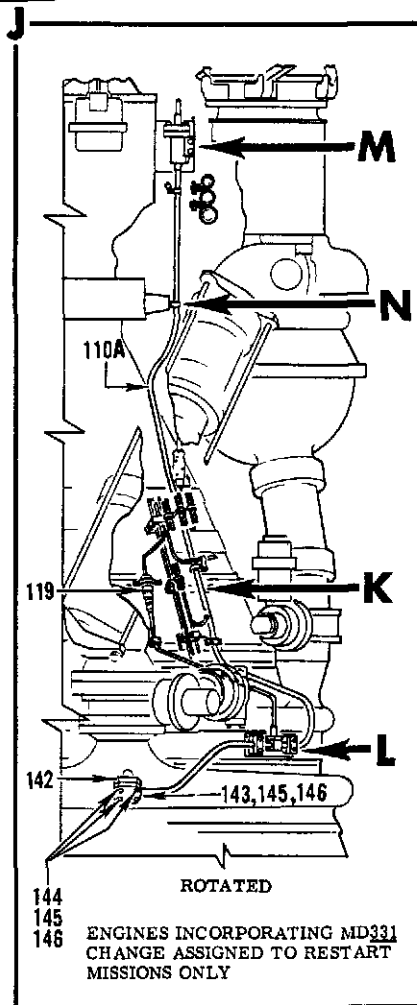
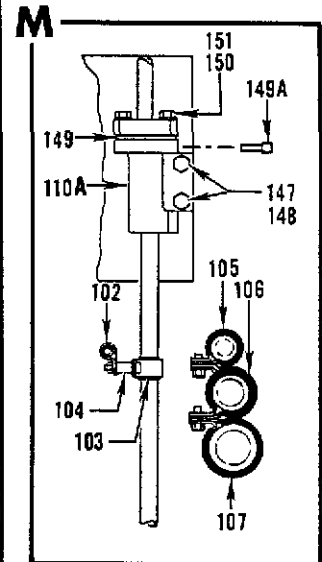


Figure 24. Start System Installation (Sheet 2 of 4)

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J2-4-97B

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Figure 24. Start System Installation (Sheet 3 of 4)

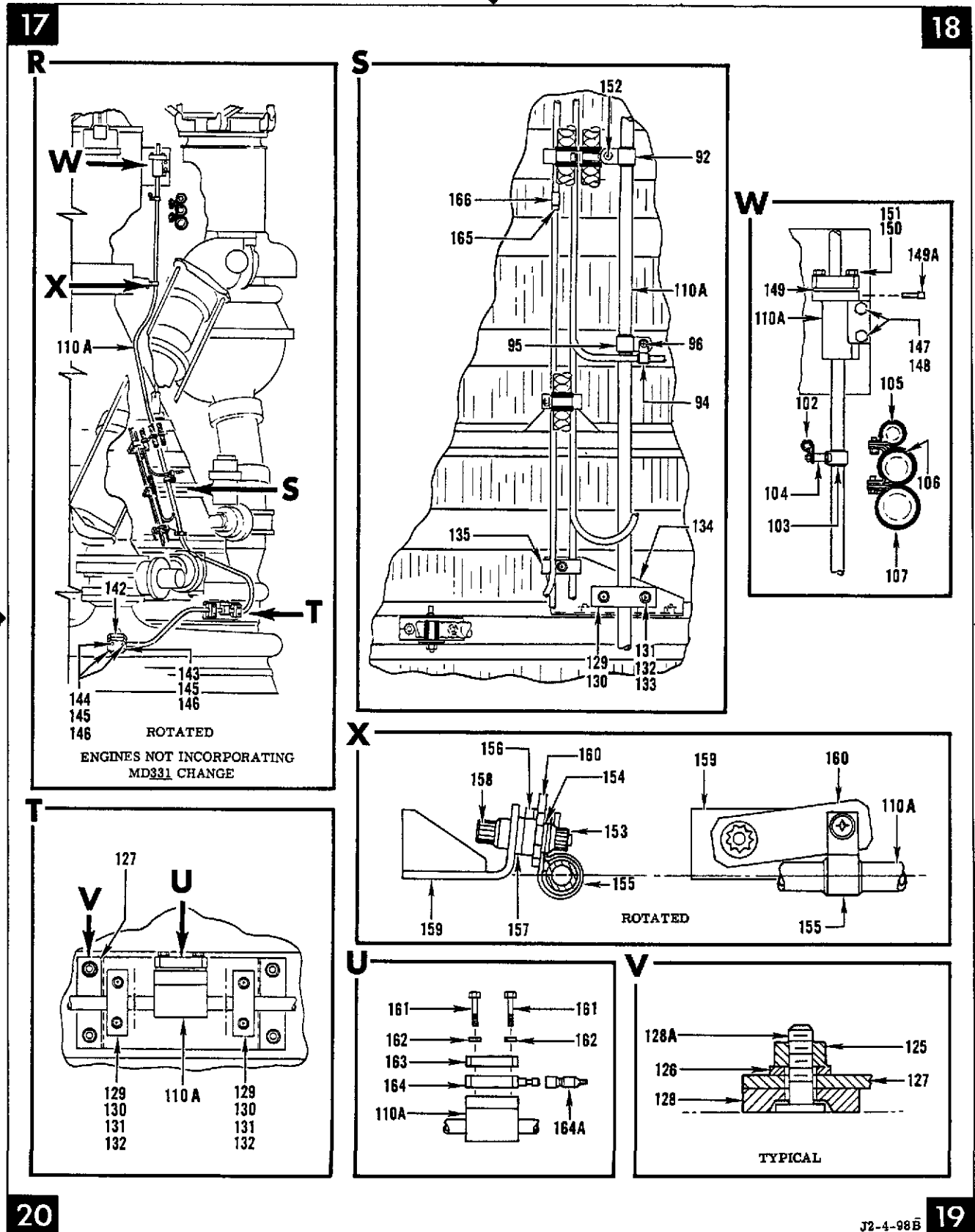


Figure 24. Start System Installation (Sheet 4 of 4)

FIG & INDEX NO	ZONE NO	PART NUMBER	DESCRIPTION							UNITS PER ASSY.	USABLE ON CODE
			1	2	3	4	5	6	7		
24-		303927	START SYSTEM INSTL (See figure 1, index 6)							REF	
- 1	4	RD273-1020-1002	PLUG AND BLEEDER							1	
- 2	4	RD261-6001-0001	GASKET							1	
- 3	3	RD273-1020-1002	PLUG AND BLEEDER							1	
- 4	3	RD261-6001-0001	GASKET							1	
- 5	3	RD265-3009-0002	PLUG							1	
- 6	3	404659	SEAL, Pressure-actuated							1	JP
- 6	3	408767 (a)	SEAL, Pressure-actuated, cryogenic							1	JYA
- 7	3	308890 (a)	HOSE ASSY, Check valve, start tank discharge valve (Welded)							1	
- 8	4	303282	BOLT, Hex, HD Inconel-x (AP)							12	
- 9	3	RD111-4010-3622	BOLT (AP)							8	
-10	4	303281	WASHER, Countersunk Inconel-x (AP)							8	
-11	3	LD153-0013-0004	WASHER (AP)							8	
-12	4	502833-11	BRACKET, Harness support							1	
-13	4	303286	BRACKET, Support fuel bleed line							1	
-14	3	404651-19	SEAL, Pressure-actuated, hot-gas							1	JP
-14	3	459720-3 (a)	SEAL, Pressure-actuated, hot-gas							1	JYA
-15	3	404656-57	SEAL, Pressure-actuated							1	JP
-15	3	459773-5 (a)	SEAL, Pressure-actuated, cryogenic							1	JYA
-16	5, 7	RD273-1020-1002	PLUG AND BLEEDER							2	
-17	5, 7	RD261-6001-0001	GASKET							2	
-18	4	AN814-4DL	PLUG AND BLEEDER							1	
-19	4	AN901-4A	GASKET							1	
-20	4	306875-21 (a)	VALVE ASSY, Start tank discharge (May replace 309020, 309020-11 or 306875 for spares) (See figure 26 for breakdown)							1	
-20	4	304386 (a)	VALVE ASSY, Start tank discharge (May replace 309020, 309020-11, 306875 or 306875-21 for spares) (Not repairable in the field--remove and replace only)							1	
-20	4	304386-21 (a)	VALVE ASSY, Start tank discharge (May replace 309020, 309020-11, 306875, 306875-21 or 304386 for spares) (Not repairable in the field--remove and replace only)							1	
-21	4	RD111-1009-3723	BOLT (AP)							12	
-22	4	LD153-0013-0005	WASHER (AP)							12	
-23	3	404656-43	SEAL, Pressure-actuated							1	
-24	3	303433	LINK ASSY, H2 inlet port, support, integral start tank (Welded)							1	CF
-24	3	303433-11	LINK ASSY, H2 inlet port, support, integral start tank (Welded)							1	ERA
-25	3	303417-9	BOLT, Support, HE port and thrust chamber, integral start tank (AP)							1	
-26	3	RD153-1002-0004	WASHER (AP)							2	
-27	3	NAS679C4W	NUT (AP)							1	
-27	3	ASBG6VSS3	BEARING (MFD by 15860) (Alternate KSBN6-2 MFD by 97613) (NHA 303433)							1	
-28	2	RE131-5001-0004	BEARING (NHA 303433-11)							1	
-28	2	303404	STRUT ASSY, H2 discharge port support, integral start tank (Welded)							1	CF
-28	2	303404-11	STRUT ASSY, H2 discharge port support, integral start tank (Welded)							1	ERA
-29	3	RD111-1009-3404	BOLT (AP)							1	
-30	2	303417-3	BOLT, Support, integral H2 start tank (AP)							2	
-31	2, 3	RD153-1002-0004	WASHER (AP)							4	
-32	3	LD153-0013-0002	WASHER (AP)							1	
-33	2, 3	NAS679C4W	NUT (AP)							2	
-34	3	303416	PIN, Support H2 discharge port (AP)							1	
-34	3	ASBG6VSS3	BEARING (MFD by 15860) (Alternate KSBN6-2 MFD by 97613) (NHA 303404)							2	
-35	1, 3, 6	RE131-5001-0004	BEARING (NHA 303404-11)							2	
-36	1, 3, 6	RD273-1020-1002	PLUG							4	
-36	1, 3, 6	RD261-6001-0001	GASKET							4	
-36	1, 3, 6	RE127-2001-0014	CLAMP							1	
-36	1, 3, 6	RE127-2001-0010	CLAMP							1	
-36A	1	NAS1101C3-12	SCREW (AP)							1	
-36B	1	LD153-0013-0001	WASHER (AP)							1	
-36B	1	RD114-8005-2003	NUT (AP)							1	
-37	1	RD273-1023-5006	SLEEVE (RD273-1029-4002 sleeve may be installed)							1	
-37	1	303936	TUBE, Start tank refill							1	
-37	1	NA5-260043 (a)	HOSE ASSY, Start tank refill (Start tank gaseous refill line) (Alternate 303438)							1	
-38	1, 4	RD111-1009-3428	BOLT (AP)							3	KPB
-38A	1, 4	RD111-1010-3427	BOLT (AP)							3	KPB
-38B	1, 4	RD111-1009-3426	BOLT (AP)							1	FUD
-38C	1, 4	RD111-1010-3426	BOLT (AP)							7	FUD
-39	1	LD153-0013-0002	WASHER (AP)							8	
-40	1	RD114-8005-2004	NUT (AP)							8	
-40	1	RD172-0007-0014	TAPE (HYDROGEN)							AR	
-40	1	RD172-0014-0039	TAPE (FLOW)							AR	
-40	1	RD172-0019-1000	TAPE (1000 PSI)							AR	
-41	1	404673-33	SEAL, Pressure-actuated, cryogenic							1	JP
-41	1	459770 (a)	SEAL, Pressure-actuated, cryogenic							1	JYA
-42	1	303437-5	ORIFICE, Refill, integral start tank (Blank)							1	KPB

(a) For interchangeability status, refer to the Component Interchangeability List.

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FIG. & INDEX NO.	ZONE NO.	PART NUMBER	DESCRIPTION							UNITS PER ASSY	USABLE ON CODE
			1	2	3	4	5	6	7		
24-43	1	404657-15	SEAL, Pressure-actuated							1	KPB
-44	1, 4	502829	BRACKET, Harness support, refill line, spin tank							1	
-45	6	557998-41 (a)	VALVE PACKAGE ASSY, Tank support and fill (Start tank support and fill valve) (May replace 558000-21 for spares) (See figure 27 for breakdown)							1	
-46	6	RD111-4008-8612	BOLT (AP)							12	
-47	6	LD153-0013-0004	WASHER (AP)							12	
-48	6	502833-3	BRACKET, Harness support							2	
-49	6	404656-53	SEAL, Pressure-actuated							1	
-50	6	303434	LINK ASSY, H2 inlet port support, integral start tank (Welded)							1	CF
-50	6	303434-11	LINK ASSY, H2 inlet port support, integral start tank (Welded)							1	ERA
-51	6	303417-5	BOLT, Support, HE, port, H2 port and thrust chamber start tank (AP)							1	
-52	6	RD153-1002-0004	WASHER (AP)							1	
-53	6	NAS679C4W	NUT (AP)							1	
		ASBG6VSS3	BEARING (MFD by 15860) (Alternate KSNB6-2 MFD by 97613) (NHA 303434)							1	
		RE131-5001-0004	BEARING (NHA 303434-11)							1	
-54	6	303414	STRUT ASSY, H2 inlet port support, integral start tank (Welded)							1	CF
-54	6	303414-11	STRUT ASSY, H2 inlet port support, integral start tank (Welded)							1	ERA
-55	6	303417-3	BOLT, Support, HE, port, H2 port and thrust chamber start tank (AP)							3	
-56	6	RD153-1002-0004	WASHER (AP)							6	
-57	6	NAS679C4W	NUT (AP)							3	
		ASBG6VSS3	BEARING (MFD by 15860) (Alternate KSNB6-2 MFD by 97613) (NHA 303414)							1	
		RE131-5001-0004	BEARING (NHA 303414-11)							1	
-58	5	557848 (a)	VALVE ASSY, Vent and relief (Start tank vent and relief valve) (Welded)							1	
			(May replace 557818, 557828, 557838, 557848-11, or 557848-21 for spares)								
-58	5	557848-11 (a)	VALVE ASSY, Vent and relief (Start tank vent and relief valve) (Welded)							1	
			(May replace 557818, 557828, 557838, 557848, or 557848-21 for spares)								
-58	5	557848-21 (a)	VALVE ASSY, Vent and relief (Start tank vent and relief valve) (Welded)							1	
			(May replace 557818, 557828, 557838, 557848 or 557848-11 for spares)								
			PARTIAL BREAKDOWN FOLLOWS								
-59	5	RD111-1009-3621	BOLT (AP)							8	
-60	5	LD153-0013-0004	WASHER (AP)							8	
-61	5	555745	NUT, Vent and relief							1	
-62	5	NAS-26931	FILTER, Element gaseous hydrogen							1	
-63	5	404675	SEAL, Pressure-actuated							1	
-64	8	303403	LINK ASSY, H2 port support, integral start tank (Welded)							1	CF
-64	8	303403-11	LINK ASSY, H2 port support, integral start tank (Welded)							1	ERA
-65	7	303417-7	BOLT, Support, helium port, H2 port and thrust chamber start tank (AP)							1	
-66	7	RD153-1002-0004	WASHER (AP)							2	
-67	7	NAS679C4W	NUT (AP)							1	
		ASBG6VSS3	BEARING (MFD by 15860) (Alternate KSNB6-2 MFD by 97613) (NHA 303403)							1	
		RE131-5001-0004	BEARING (NHA 303403-11)							1	
-68	6	303450-2	CLEVIS, Bolt on spin tank support							1	
		RD111-4010-3409	BOLT (AP)							4	
		RD153-5002-0004	WASHER (AP)							4	
-69	7	303402	STRUT ASSY, Helium port support, integral start tank (Welded)							1	CF
-69	7	303402-11	STRUT ASSY, Helium port support, integral start tank (Welded)							1	ERA
-70	7	308417-3	BOLT, Support, helium port, H2 port and thrust chamber start tank (AP)							2	
-71	7	RD153-1002-0004	WASHER (AP)							4	
-72	7	NAS679C4W	NUT (AP)							2	
		ASBG6VSS3	BEARING (MFD by 15860) (Alternate KSNB6-2 MFD by 97613) (NHA 303402)							1	
		RE131-5001-0004	BEARING (NHA 303402-11)							1	
-73	7	303450-1	CLEVIS, Bolt on spin tank support							1	
		RD111-4010-3409	BOLT (AP)							4	
		RD153-5002-0004	WASHER (AP)							4	
-74	8	303428	COVER ASSY, Helium port, spin tank (Helium cover and helium fill-check valve) (Welded)							1	CF
-74	8	303428-11	COVER ASSY, Helium port, spin tank (Helium cover and helium fill-check valve) (Welded)							1	ERA
-75	7	RD111-4010-3522	BOLT (AP)							12	
-76	7	RD153-5002-0005	WASHER (AP)							12	
		ASBG6VSS3	BEARING (MFD by 15860) (Alternate KSNB6-2 MFD by 97613) (NHA 303428)							1	
		RE131-5001-0004	BEARING (NHA 303428-11)							1	
-76A	8	556480	VALVE ASSY, Check, helium fill (NHA 303428, 303428-11)							1	
-77	7	502845	BRACKET, Support electrical wire harness, spin tank							1	
-77A	7	703561	BRACKET, Support, flight instrumentation							1	
		RD153-0113-0014	WASHER (AP)							2	
		LD153-0010-0008	WASHER (AP)							2	
		NAS679C3W	NUT (AP)							2	
		RD153-1002-0005	WASHER							2	
-78	8	404656-49	SEAL, Pressure-actuated							1	
-79	3	307579 (a)	TANK ASSY, Integral, insulated (Integral hydrogen-helium start tank) (Welded) (May replace 303439 or 307571 for spares)							1	
-80	3	307578	PLATE, Identification integral tank, insulated							1	HTA
-81											
THRU											
-91		DELETED									
-92	14, 18	RE127-2001-0008	CLAMP							1	
-93		DELETED									
-94	14, 18	RE127-2001-0002	CLAMP							1	

(a) For interchangeability status, refer to the Component Interchangeability List.

FIG & INDEX NO	ZONE NO.	PART NUMBER	DESCRIPTION	UNITS PER ASSY	USABLE ON CODE
			1 2 3 4 5 6 7		
24-95	14, 18	RE127-2005-0010	. CLAMP	1	
-96	14, 18	NAS43DD3-48	. SPACER	1	
		NAS1101C3-20	. SCREW (AP)	1	
		NAS679C3W	. NUT (AP)	1	
-97					
THRU		DELETED			
-101		RE127-2001-0004	. CLAMP	1	
-102	14, 18	RE127-2001-0008	. CLAMP	1	
-103	14, 18	NAS43DD3-21	. SPACER	1	
-104	14, 18	NAS1101C3-16	. SCREW (AP)	1	
		LD153-0013-0001	. WASHER (AP)	1	
		NAS679C3W	. NUT (AP)	1	
-105	14, 18	RE127-2005-0014	. CLAMP	1	
-106	14, 18	RE127-2005-0016	. CLAMP	1	
-107	14, 18	RE127-2005-0019	. CLAMP	1	
-108					
THRU		DELETED			
-110		209732-71	. HOSE ASSY, Fuel probe to ASI injector	1	
-110A	13, 14, 15 16, 17, 18 19, 20				
-111					
THRU		DELETED			
-118		307599-41 (a)	. MANIFOLD ASSY, Check valve, start tank refill (May replace 307599-11 for spares)	1	
-119	13, 15		. VALVE ASSY, Check, start tank refill (Welded) (Alternate 307599-13) (Start tank liquid refill check valve)	1	
-120	13	309050	. ORIFICE, Threaded, 3/8 IN. line	1	
-121	16	501459	. TAPE (ROCKET)	AR	
		RD172-0002-0001	. TAPE (HYDROGEN)	AR	
		RD172-0014-0019	. TAPE (FLOW)	AR	
		RD172-0014-0039	. TAPE (1250 PSI)	AR	
		RD172-0018-1250	. TUBE, 321 CRES, 3/8 IN. OD by 0.035 gage by 22.00 IN. LG	1	
		307599-3	. SEAL ASSY, Pressure-assisted, cryogenic	1	NUB
-122	15	407909	. CAP	1	NUB
-122A	15	RD265-5017-0001	. BOLT	4	NUB
-123	15, 16	RD111-1009-3415	. WASHER	4	NUB
-124	15, 16	LD153-0013-0002	. NUT	4	NUB
-125	15, 19	NAS679C4W	. WASHER	4	NUB
-126	15, 19	RD153-0015-0024	. SUPPORT ASSY, Fuel line, augmented spark igniter	2	NUB
-127	15, 16, 19 20	411608	. WASHER	2	NUB
-128	15, 19	LD153-0013-0003	. STUD	4	NUB
-128A	15, 19	RD111-1003-0410	. CLAMP, Adjustable, 5/8 IN. tube	2	NUB
-129	14, 16, 19 20	411612	. SPACER, Adjustable clamp, augmented spark igniter fuel line to main fuel valve sequence valve	AR	NUB
-130	14, 16, 19 20	411533	. SCREW (AP)	2	
-131	15, 16, 19 20	NAS1101C3-34	. WASHER (AP)	2	
-132	15, 16, 19 20	RD153-1002-0003	. NUT (AP)	1	
-133	15, 19	NAS679C3W	. BRACKET, Support, fuel hose, augmented spark igniter	1	
-134	14, 18	411537	. WASHER (AP)	3	
		LD153-0013-0002	. WASHER (AP)	3	
		RD153-1002-0003	. NUT (AP)	3	
		NAS679C3W	. CLAMP	2	
-135	14, 17	RD127-1001-0002	. SCREW (AP)	1	
		AN520C10R16	. WASHER (AP)	1	
		LD153-0010-0008	. NUT (AP)	1	
-136	13	NAS679C3W	. CLAMP	1	NUB
		RE127-2006-0020	. SCREW (AP)	2	
		NAS1101C3-8	. NUT (AP)	2	
		NAS679C3W	. STUD	3	
-136A	13	RD113-1001-0366	. WASHER (AP)	3	
		LD153-0013-0002	. WASHER (AP)	3	
		RD153-1002-0003	. NUT (AP)	3	
		NAS679C3W	. BRACKET, Support	1	NUB
-137	13	411543	. WASHER (AP)	2	
		LD153-0013-0002	. WASHER (AP)	2	
		RD153-1002-0003	. NUT (AP)	2	
		NAS679C3W	. CLAMP	1	NUB
-138	13	RE127-2005-0011	. SCREW (AP)	1	
		NAS1101C3-8	. NUT (AP)	1	
		NAS679C3W			

(a) For interchangeability status, refer to the Component Interchangeability List.

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FIG & INDEX NO.	ZONE NO	PART NUMBER	DESCRIPTION							UNITS PER ASSY.	USABLE DN CODE
			1	2	3	4	5	6	7		
24-139	15	406367	CLAMP, Adjustable, oxidizer line, augmented spark igniter (See figure 14, index 56C, for REQMT)							REF	
-139A	15	406368	SHIM, Oxidizer line, augmented spark igniter							4	NUB
		NAS1101C3-28	SCREW (AP)							2	
		RD153-1002-0003	WASHER (AP)							2	
		NAS879C3W	NUT (AP)							2	REF
-140	16	502833-5	BRACKET, Harness support (See figure 22, index 19, for REQMT)							1	NUB
-141	16	411544	BRACKET, Support, fill check valve, aft end							2	
		LD153-0013-0002	WASHER (AP)							2	
		RD153-1002-0003	WASHER (AP)							2	
		NAS879C3W	NUT (AP)							2	
		RD113-1001-0366	STUD							3	PHA
-142	13, 17	404658-5	SEAL, Pressure-actuated, spacer type, square							1	NUB
-143	13, 20	RD111-1009-3426	BOLT							1	NUB
-144	16, 20	RD111-1009-3419	BOLT							3	NUB
-145	16, 20	LD153-0013-0002	WASHER							4	NUB
-146	16, 20	RD114-8005-2004	NUT							4	NUB
-147	14	RD111-4008-6408	BOLT							2	NUB
-148	14	707451	WASHER, Increased outside diameter							2	NUB
-149	14, 18	459767	SEAL, Pressure-actuated, cryogenic (See figure 14, index 35, for REQMT)							REF	
-149A	14, 18	RD265-3010-0001	PLUG							1	NUB
-150	14, 18	RD111-4008-6408	BOLT							4	NUB
-151	14, 18	LD153-0013-0002	WASHER							4	NUB
-152	14, 18	411538	SPACER, Tube clamp							1	NUB
-153	15, 19	RD114-8005-2004	NUT							1	NUB
-154	15, 19	RD153-1002-0004	WASHER							1	NUB
-155	15, 19	RE127-2001-0008	CLAMP							1	NUB
		NAS1101C3-8	SCREW (AP)							1	
		411616	WASHER, Oval (AP)							1	
		NAS879C3W	NUT (AP)							1	
-156	15, 19	411617-3	SPACER, Support							AR	NUB
-157	15, 19	411617-5	SPACER, Support							AR	NUB
-158	15, 19	RD111-4011-3420	BOLT							1	NUB
-159	15, 19, 20	206584-15	BRACKET, Thrust chamber jacket							1	NUB
-160	15, 19	411615	BRACKET, Support							1	NUB
-161	19, 20	RD111-1009-3416	BOLT							4	NUB
-162	19, 20	LD153-0013-0002	WASHER							4	NUB
-163	19	411609	PLATE, Liquid refill line, spin tank							1	NRB/PLB
-164	20	407909	SEAL ASSY, Pressure assisted, cryogenic							1	NRB/PLB
-164A	20	RD265-5017-0001	CAP							1	NRB/PLB
-165	17	704386	PLUG, Instrumentation tube (Used on engines not assigned to SIVB restart missions)							1	NRB/PLB
-166	17	RD273-1023-0005	SLEEVE (RD273-1029-0002 sleeve may be installed) (Used on engines not assigned to SIVB restart missions)							1	NRB/PLB
-167	3	307570	START SYSTEM GROUP ASSY (May be installed on engines J-2075 thru J-2087) (See figure 25 for breakdown)							1	
-167	3	307570-11	START SYSTEM GROUP ASSY (May be installed on engines J-2088 thru J-2112) (See figure 25 for breakdown)							1	
-167	3	307570-21	START SYSTEM GROUP ASSY (See figure 25 for breakdown)							1	JGC
-167	3	307570-41	START SYSTEM GROUP ASSY (May be installed on engines J-2122 thru J-2129) (See figure 25 for breakdown)							1	
-167	3	307570-51	START SYSTEM GROUP ASSY (May be installed on engine J-2130) (See figure 25 for breakdown)							1	
-167	3	307570-31	START SYSTEM GROUP ASSY (See figure 25 for breakdown)							1	JYC
-167	3	307570-61	START SYSTEM GROUP ASSY (See figure 25 for breakdown)							1	NHA

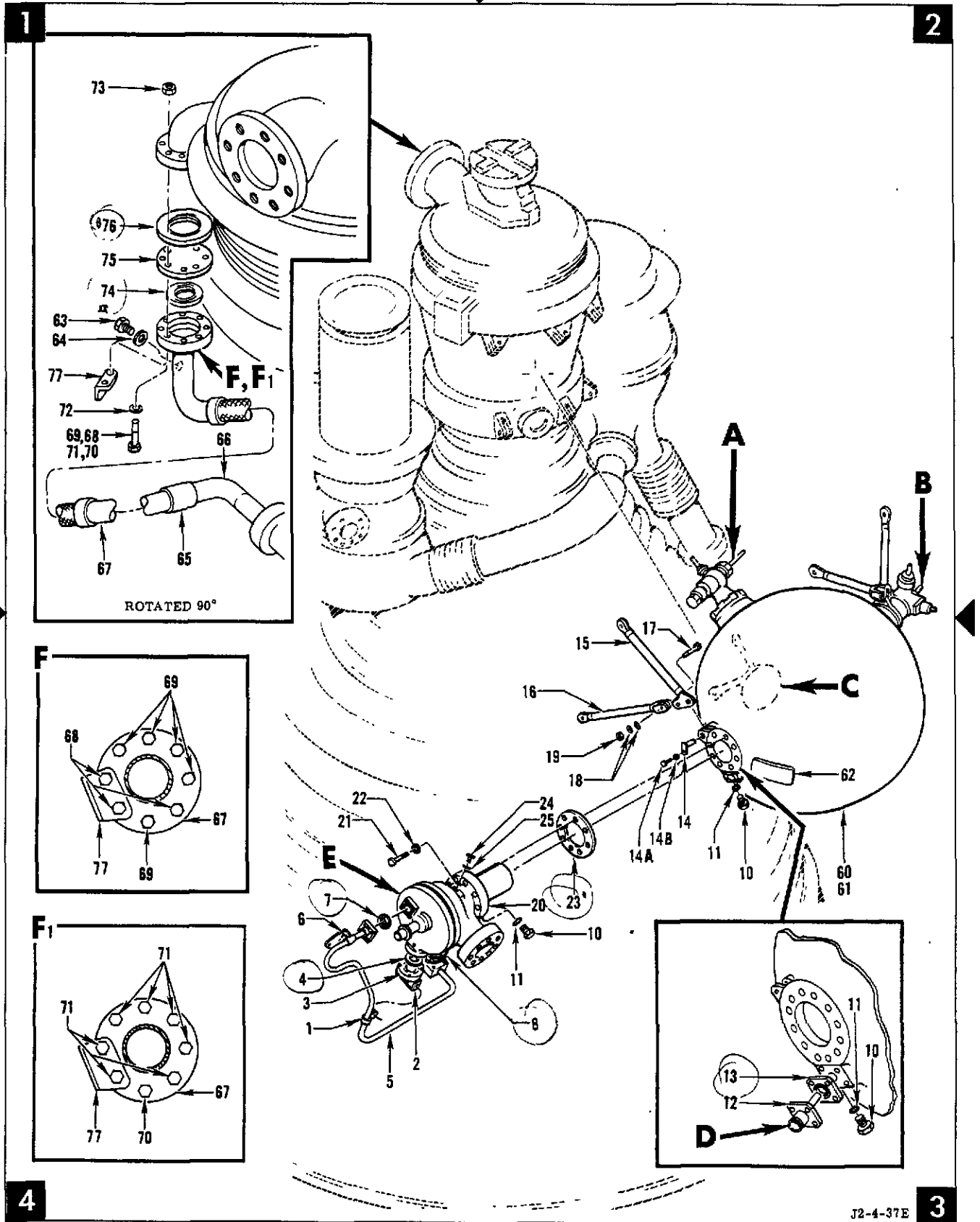


Figure 25. Start System Group Assembly (Engines J-2075 Through J-2152) (Sheet 1 of 2)

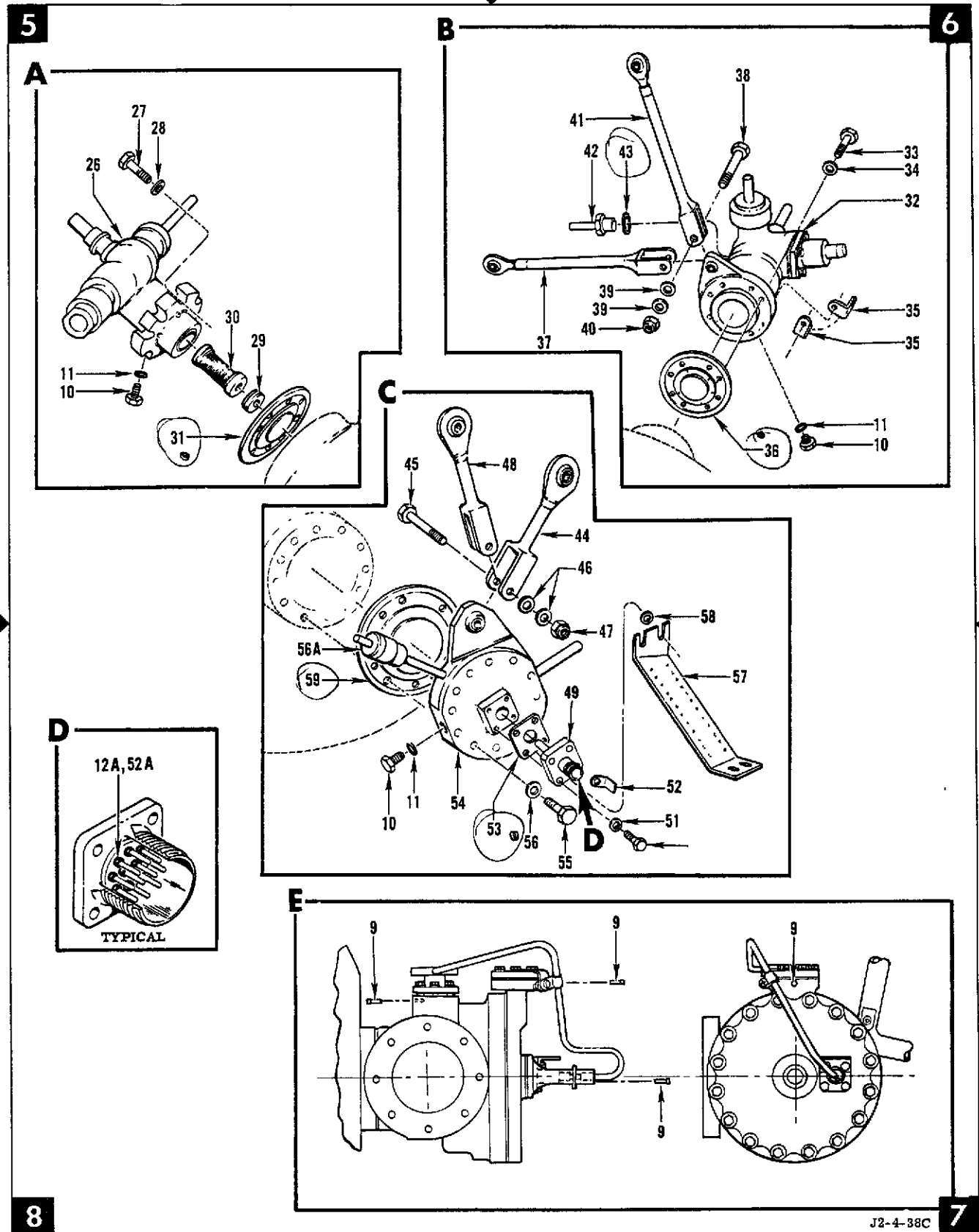


Figure 25. Start System Group Assembly (Engines J-2075 Through J-2152) (Sheet 2 of 2)

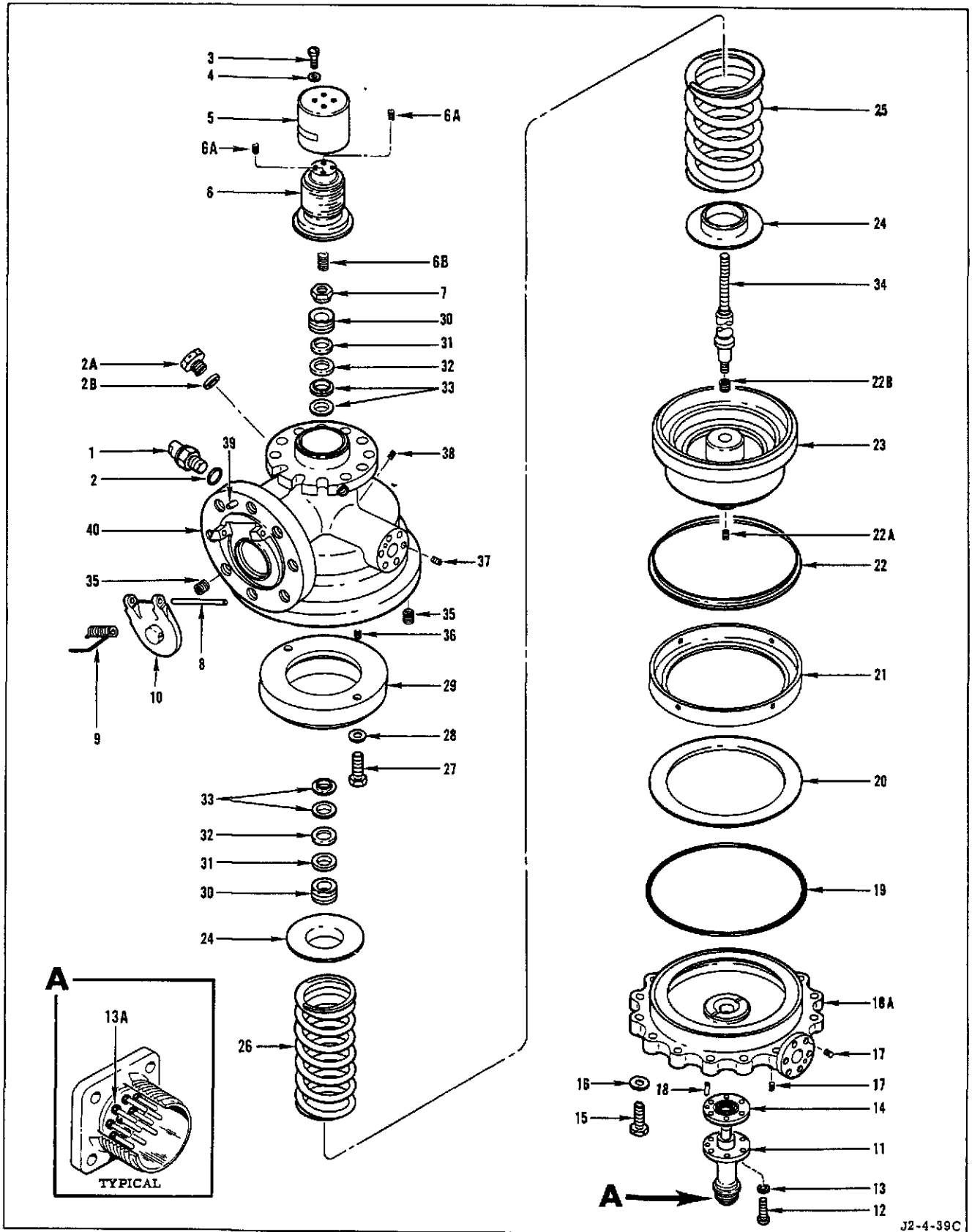
FIG & INDEX NO	ZONE NO.	PART NUMBER	DESCRIPTION	UNITS PER ASSY	USABLE ON CODE
			1 2 3 4 5 6 7		
25-		307570	START SYSTEM GROUP		
		307570-11	START SYSTEM GROUP ASSY (May be installed on engines J-2075 THRU J-2087)	REF	
		307570-21	START SYSTEM GROUP ASSY (May be installed on engines J-2088 THRU J-2112)	REF	
		307570-41	START SYSTEM GROUP ASSY (May be installed on engines J-2122 THRU J-2129)	REF	JGC
		307570-51	START SYSTEM GROUP ASSY (May be installed on engine J-2130)	REF	
		307570-31	START SYSTEM GROUP ASSY	REF	JYC
		307570-61	START SYSTEM GROUP ASSY	REF	NHA
- 1	4	RE127-2001-0002	CLAMP	1	1
		NAS1101C3-8	SCREW (AP)	1	1
		NAS679C3W	NUT (AP)	1	1
- 2	4	502833-9	BRACKET, Harness support	1	1
- 3	4	557439	CAP, Pneumatic spin valve	1	1
		RD111-1009-3414	BOLT (AP)	6	6
		LD153-0013-0002	WASHER (AP)	5	5
- 4	4	404673-19	SEAL, Pressure-actuated, cryogenic	1	1
- 4	4	410896 (a)	SEAL, Pressure-actuated, cryogenic	1	1
- 5	4	557438	ADAPTER ASSY, Pneumatic, control solenoid to spin valve (Start tank discharge valve control valve adapter) (Welded)	1	1
		RD111-1009-3417	BOLT (AP)	6	6
		LD153-0013-0002	WASHER (AP)	6	6
		RD172-0018-0450	TAPE (450 PSI)	AR	AR
		RD172-0012-0001	TAPE (PNEUMATIC)	AR	AR
		RD172-0014-0018	TAPE (HELIUM)	AR	AR
- 6	4	502835	BRACKET, Harness support, LOX and fuel bleed valves	1	1
- 7	4	404673-3	SEAL, Pressure-actuated, cryogenic	1	1
- 7	4	410876 (a)	SEAL, Pressure-actuated, cryogenic	1	1
- 8	3	404657-5	SEAL, Pressure-actuated	1	1
- 8	3	401212 (a)	SEAL, Pressure-actuated, cryogenic	1	1
- 9	3, 4	404631	PLUG, Port, leak tap	3	3
-10	1, 3, 5	RD273-1020-1002	PLUG AND BLEEDER	5	5
-11	1, 3, 5	RD261-6001-0001	GASKET	5	5
-12	3	NA5-27215T5 (a)	TRANSDUCER, Temperature, resistance-type (Start tank temperature) (Tap TFT1) (J123)	1	1
		RD111-1009-3413	BOLT (AP)	4	4
		RD191-4002-1005	LUG (AP)	1	1
		RD153-5003-0004	WASHER (AP)	4	4
-12A	8	RD421-5001-0016	INSULATOR (NHA 103850)	6	6
-13	1	404666-7	SEAL, Pressure-actuated, spacer type, square flange	1	1
-13	1	459724 (a)	SEAL, Pressure-actuated, cryogenic	1	1
-14	3	303416	PN, Support H2 discharge port	1	1
-14A	3	RD111-1009-3404	BOLT	1	1
-14B	3	LD153-0013-0002	WASHER	1	1
-15	3	303404-11	STRUT ASSY, H2 discharge port support, integral start tank (Welded)	1	1
		RE131-5001-0004	BEARING	2	2
-16	3	303433-11	LINK ASSY, H2 inlet port, support, integral start tank (Welded)	1	1
		RE131-5001-0004	BEARING	2	2
-17	3	303417-9	BOLT, Support, HE port and thrust chamber, integral start tank	1	1
-18	3	RD153-1002-0004	WASHER	2	2
-19	3	NAS679C4W	NUT	1	1
-20	3	306875-21	VALVE ASSY, Start tank discharge (May replace 306875 for spares) (See figure 26 for breakdown)	1	1
-20	3	304386 (a)	VALVE ASSY, Start tank discharge (May replace 306875 or 306875-21 for spares) (Not repairable in the field--remove and replace only)	1	1
-20	3	304386-21 (a)	VALVE ASSY, Start tank discharge (May replace 306875, 306875-21 or 304386 for spares) (Not repairable in the field--remove and replace only) (Used on engines assigned to SIVB restart missions only)	1	1
-21	4	RD111-1009-3723	BOLT	12	12
-22	4	LD153-0013-0005	WASHER	12	12
-23	3	404656-43	SEAL, Pressure-actuated	1	1
-23	3	459773-3 (a)	SEAL, Pressure-actuated, cryogenic	1	1
-24	3	AN814-4DL	PLUG AND BLEEDER	1	1
-25	3	AN901-4A	GASKET	1	1
-26	5	557848-21 (a)	VALVE ASSY, Vent and relief (Start tank vent and relief valve) (Welded) (May replace 557828, 557838, 557848 or 557848-11 for spares)	1	1
(a) For interchangeability status, refer to the Component Interchangeability List.					

Section II
Start System

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FIG. & INDEX NO	ZONE NO.	PART NUMBER	DESCRIPTION							UNITS PER ASSY	USABLE ON CODE
			1	2	3	4	5	6	7		
25-			PARTIAL BREAKDOWN FOLLOWS								
-27	5	RD111-1009-3621	BOLT (AP)							8	8
-28	5	LD153-0013-0004	WASHER (AP)							8	8
-29	5	555745	NUT, Vent and relief							1	1
-30	5	NA5-26931	FILTER, Element gaseous hydrogen							1	1
-31	5	404675	SEAL, Pressure-actuated							1	JP
-31	5	459753 (a)	SEAL, Pressure-actuated, cryogenic							1	JYA
-32	6	557998-41 (a)	VALVE PACKAGE ASSY, tank support and fill (Start tank support and fill valve) (May replace 557998 or 557998-11 for spares) (See figure 27 for breakdown)							1	1
-33	6	RD111-4008-6612	BOLT (AP)							12	12
-34	6	LD153-0013-0004	WASHER (AP)							12	12
-35	6	502833-3	BRACKET, Harness support							2	2
-36	6	404656-53	SEAL, Pressure-actuated							1	1
-37	6	303434-11	LINK ASSY, H2 inlet port support, integral start tank (Welded)							1	1
-38	6	303417-5	BOLT, Support, HE, port, H2 port and thrust chamber start tank (AP)							1	1
-39	6	RD153-1002-0004	WASHER (AP)							2	2
-40	6	NA5679C4W	NUT (AP)							1	1
		RE131-5001-0004	BEARING							1	1
-41	6	303414-11	STRUT ASSY, H2 inlet port support, integral start tank (Welded)							1	1
		RE131-5001-0004	BEARING							1	1
-42	6	702528	ADAPTER, Flight instrumentation, boss to tube							1	1
-43	6	404659	SEAL, Pressure-actuated							1	JP
-43	6	408787 (a)	SEAL, Pressure-actuated, cryogenic							1	JYA
-44	7	303403-11	LINK ASSY, H2 port support, integral start tank (Welded)							1	1
-45	7	303417-7	BOLT, Support, helium port, H2 port and thrust chamber start tank (AP)							1	1
-46	7	RD153-1002-0004	WASHER (AP)							2	2
-47	7	NA5679C4W	NUT (AP)							1	1
		RE131-5001-0004	BEARING							1	1
-48	7	303402-11	STRUT ASSY, Helium port support, integral start tank (Welded)							1	1
		RE131-5001-0004	BEARING							1	1
-49	7	NA5-27215T3	TRANSDUCER, Temperature, resistance-type (Tap NNT1) (J122)							1	1
-50	7	RD111-1009-3411	BOLT (AP)							4	4
-51	7	RD153-5003-0004	WASHER (AP)							4	4
-52	7	RD191-4002-1005	LUG (AP)							1	1
-52A	8	RD421-5001-0016	INSULATOR (NHA 103850)							3	3
-53	7	404666-7	SEAL, Pressure-actuated, spacer type, square flange							1	JP
-53	7	459724 (a)	SEAL, Pressure-actuated, cryogenic							1	JYA
-54	7	303428-11	COVER ASSY, Helium port, spin tank (Helium cover and helium fill-check) (Welded)							1	1
-55	7	RD111-4010-3522	BOLT (AP)							12	12
-56	7	RD153-5002-0005	WASHER (AP)							12	12
		RE131-5001-0004	BEARING							1	1
-56A	8	556480	VALVE ASSY, Check, helium fill							1	1
-57	7	502845	BRACKET, Support, electrical wire harness, spin tank							1	1
-58	7	LD153-0010-0012	WASHER							2	2
-59	7	404658-49	SEAL, Pressure-actuated							1	JP
-59	7	410890 (a)	SEAL, Pressure-actuated, cryogenic							1	JYA
-60	3	307579 (a)	TANK ASSY, Integral, insulated (Start tank) (Welded) (May replace 307571 for spares)							1	1
-61	3	307578	PLATE, Identification, integral tank, insulated							1	1
-62	3	RD171-1042-0001	NAMEPLATE							1	1
-63	1	RD273-1020-1002	PLUG AND BLEEDER (See figure 24, index 35, for REQMT)							REF	REF
-64	1	RD261-6001-0001	GASKET (See figure 24, index 36, for REQMT)							REF	REF
-65	1	RD273-1023-5006	SLEEVE (RD273-1029-4002 sleeve may be installed) (See figure 24, index 36A, for REQMT)							REF	REF
-66	1	303936	TUBE, Start tank refill (See figure 24, index 36B, for REQMT)							REF	REF
-67	1,4	NA5-260043	HOSE ASSY, Start tank refill (Start tank gaseous refill line) (See figure 24, index 37, for REQMT)							REF	REF
-68	1,4	RD111-1009-3428	BOLT (AP) (See figure 24, index 38, for REQMT)							REF	REF
-69	1,4	RD111-1010-3427	BOLT (AP) (See figure 24, index 38A, for REQMT)							REF	REF
-70	1,4	RD111-1009-3426	BOLT (AP) (See figure 24, index 38B, for REQMT)							REF	REF
-71	1,4	RD111-1010-3426	BOLT (AP) (See figure 24, index 38C, for REQMT)							REF	REF
-72	1	LD153-0013-0002	WASHER (AP) (See figure 24, index 39, for REQMT)							REF	REF
-73	1	RD114-8005-2004	NUT (AP) (See figure 24, index 40, for REQMT)							REF	REF
-74	1	404673-33	SEAL, Pressure-actuated, cryogenic (See figure 24, index 41, for REQMT)							REF	REF
-74	1	459770	SEAL, Pressure-actuated cryogenic (See figure 24, index 41, for REQMT)							REF	REF
-75	1	303437-5	ORIFICE, Refill, integral start tank (Blank) (See figure 24, index 42, for REQMT)							REF	REF
-76	1	404657-15	SEAL, Pressure-actuated (See figure 24, index 43, for REQMT)							REF	REF
-77	1,4	502829	BRACKET, Harness support, refill line, spin tank (See figure 24, index 44, for REQMT)							REF	REF

(a) For interchangeability status, refer to the Component Interchangeability List.

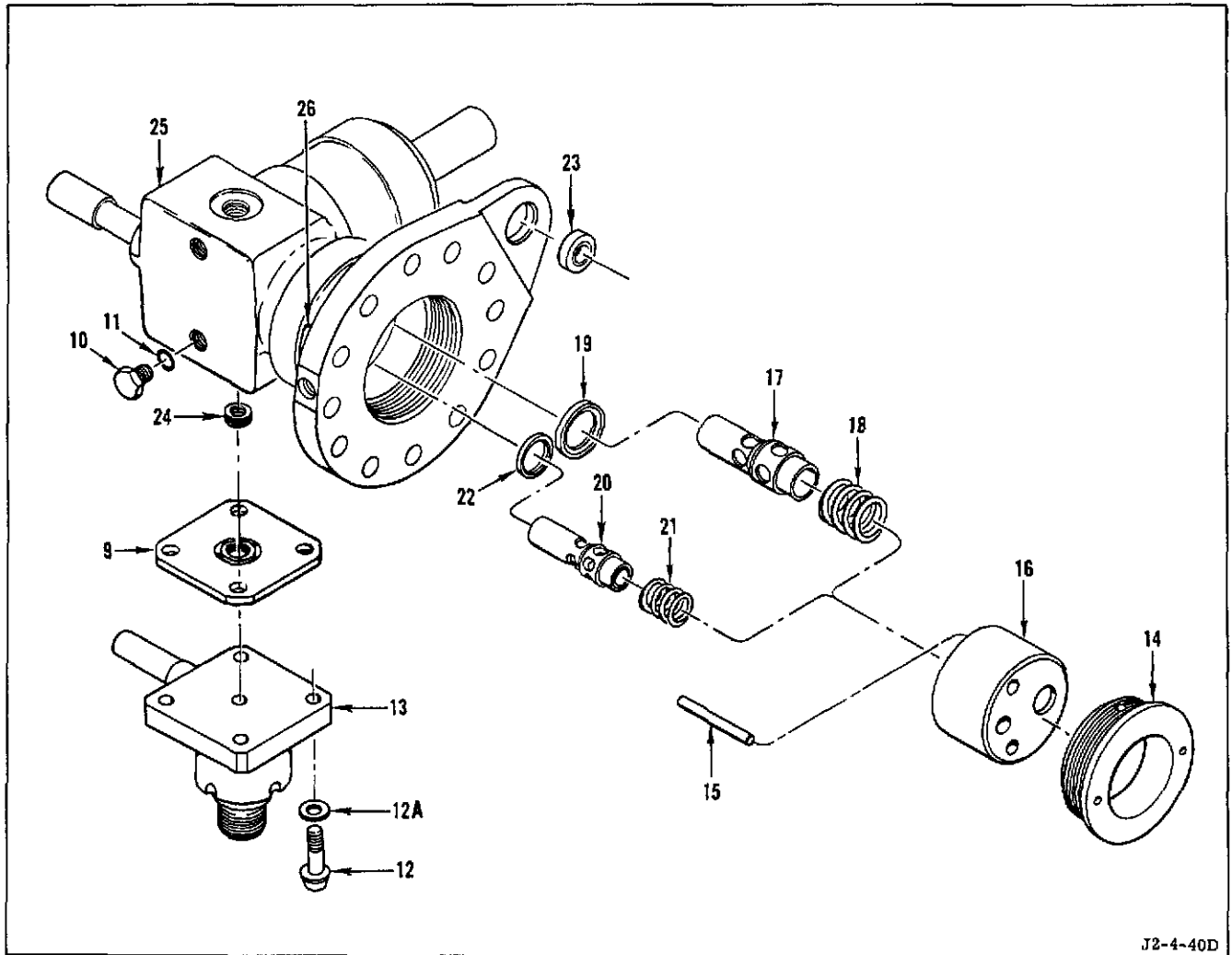


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Figure 26. Start Tank Discharge Valve Assembly

Start System

FIG & INDEX NO.	ZONE NO.	PART NUMBER	DESCRIPTION							UNITS PER ASSY	USABLE DN CODE
			1	2	3	4	5	6	7		
26-		306875-21	VALVE ASSY, Start tank discharge (May replace 553372 for spares)(See figure 24 . . . Index 20, and figure 25, index 20, for REQMT)							REF	
- 1		553372-11	VALVE ASSY, 1/4 IN. vent port check							1	
- 2		MS28778-4	PACKING							1	
- 2A		AN814-4DL	PLUG AND BLEEDER							1	
- 2B		AN901-4A	GASKET							1	
- 3		NAS1101C3-7	SCREW							2	
- 4		LD153-0013-0001	WASHER							2	
- 5		303463	LID, Spin start valve							1	
- 6		306756	SEAL ASSY, Bellows, retained, discharge valve, start tank (Welded). (Alternate 304363)							1	
- 6A		3591-3CNVX285	INSERT (MFD by 91767)							2	
- 6B		3591-5CNVX625	INSERT (MFD by 91767)							1	
- 7		303569	NUT, Spin start valve							1	
- 8		303475	PIN, Start tank discharge valve							1	
- 9		303622	SPRING, Spin start valve							1	
-10		308728	GATE, Check valve, start tank discharge valve							1	
-11		NA5-27306	RESISTOR, Variable, linear-motion, 2K ohms with integral single-pole, ... double throw switch (J118)							1	
-12		NAS1101C4H16	SCREW (AP)							6	
-13		LD153-0013-0002	WASHER (AP)							6	
-13A		RD421-5001-0016	INSULATOR (NHA 103850)							7	
-14		401204	SEAL, Pressure-actuated							1	
		303470	COVER ASSY, Valve spin start							1	
-15		RD111-1011-0626	BOLT (AP)							16	
-16		LD153-0013-0004	WASHER (AP)							16	
-17		1191-4CNVX500	INSERT (MFD by 91767)							18	
-18		MS171500	PIN							1	
-18A		303470-5	COVER, Valve spin start							1	
-19		MS29513-263	PACKING							1	
-20		303473	LIPSEAL, 5.368, spin start valve							1	
-21		303469	SPACER, Seal, spin start valve							1	
-22		303472	LIPSEAL, 6.630, spin start valve							1	
		308723	PISTON ASSY, Discharge valve, start tank							1	
-22A		3591-3CNVX285	INSERT (MFD by 91767)							1	
-22B		3591-5CNVX625	INSERT (MFD by 91767)							1	
-23		308723-3	PISTON, Discharge valve, start tank							1	
-24		303465	SPRING RETAINER, Spin start valve							2	
-25		303462	SPRING, 3.560, spin start valve							1	
-26		303461	SPRING, 2.750, spin start valve							1	
-27		NAS1101C4-18	BOLT							2	
-28		LD153-0013-0002	WASHER							2	
-29		303621	FILLER, Spin start valve							1	
-30		303468	RETAINER ASSY, Seal, start tank discharge valve (Bonded).							2	
-31		303467	WASHER, Swivel, spin start valve							2	
-32		303466	WASHER, Seal, spin start valve							2	
-33		303474	LIPSEAL, .553, spin start valve							4	
-34		309022	SHAFT, Discharge valve, start tank							1	
		306874	HOUSING ASSY, Discharge valve, start tank							1	
-35		1191-6CNV0750	INSERT (MFD by 91767)							24	
-36		3591-4CNV0375	INSERT (MFD by 91767)							2	
-37		1191-4CNV0500	INSERT (MFD by 91767)							6	
-38		1191-4CNV0375	INSERT (MFD by 91767)							4	
-39		MS171534	PIN							1	
-40		306874-5	HOUSING, Discharge valve, start tank							1	



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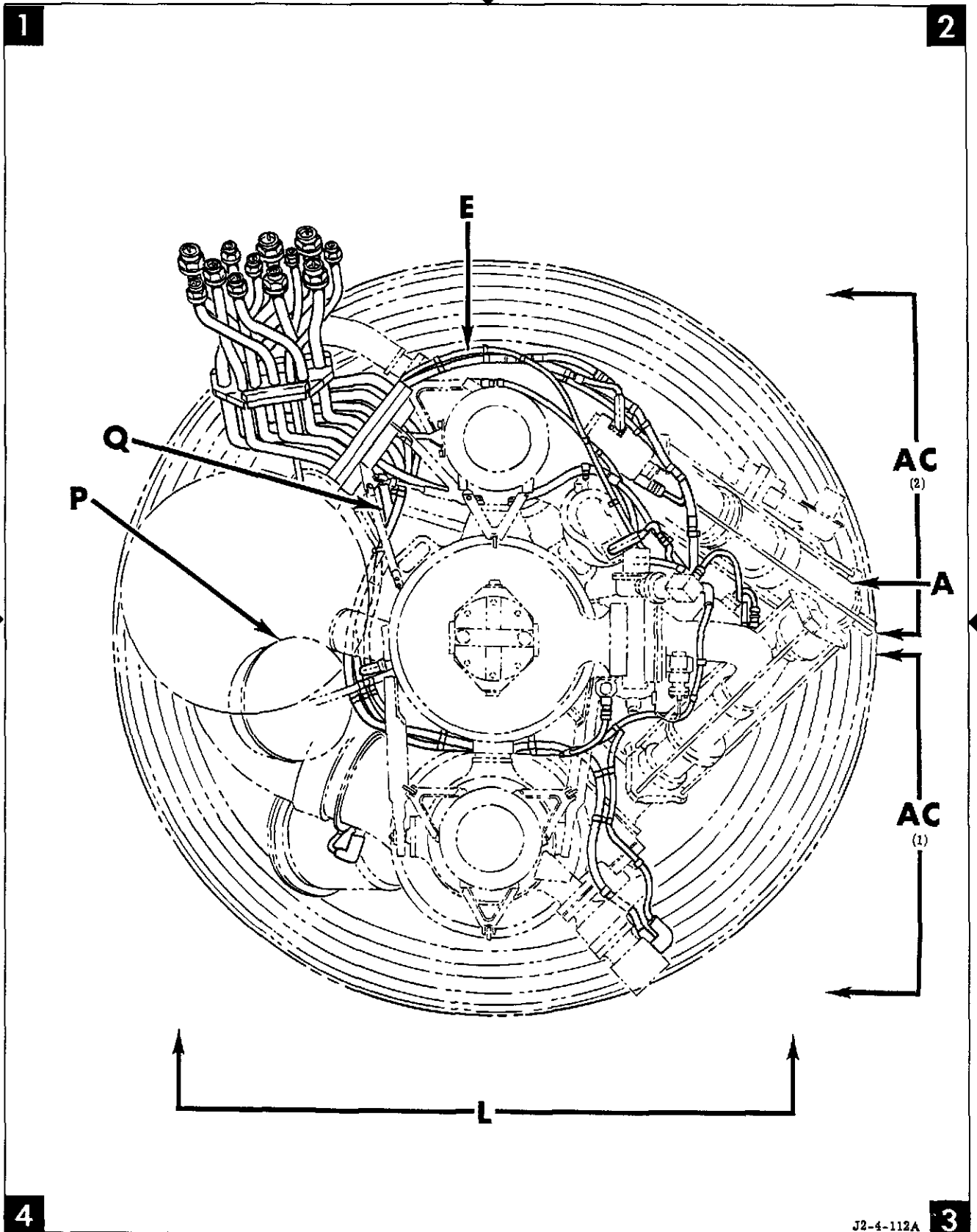
Figure 27. Tank Support-and-Fill Valve Package Assembly (Start Tank Support-and-Fill Valve)

FIG & INDEX NO	ZONE NO	PART NUMBER	DESCRIPTION	UNITS PER ASSY	USABLE ON CODE
			1 2 3 4 5 6 7		
27-		557998-41	VALVE PACKAGE ASSY, Tank support and fill (Start tank support and fill valve) (May replace valve package assemblies 558000 or 557998 basic and -11) (See figure 24, index 45, and figure 25, index 32, for REQMT) PARTIAL BREAKDOWN FOLLOWS	REF	
- 1		DELETED			
THRU		410870	SEAL, Pressure-actuated, cryogenic (NHA 557998-11)	1	
- 8		RD273-1020-1002	PLUG AND BLEEDER	1	
- 9		MS29512-02	PACKING	1	
-10		RD111-3008-3417	BOLT	4	
-11		LD153-0013-0002	WASHER	4	
-12		558301-21	VALVE ASSY, Emergency vent (Welded) (J55)	1	
-12A		DELETED			
-13		402999	NUT ASSY, Cap retaining	1	
-13A		NAS1283	LOCKING, Type N	1	
-14		406078	END CAP ASSY, Check valve, start tank fill package	1	
		403524	PIN, Aligning, end cap	1	
-15		406078-3	END CAP, Check valve, start tank fill package	1	
-16		406117	POPPET, Check valve, 5/8 IN.	1	
-17					

Section II
Start System

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FIG. & INDEX NO.	ZONE NO.	PART NUMBER	DESCRIPTION							UNITS PER ASSY.	USABLE ON CODE
			1	2	3	4	5	6	7		
27-18		402959	.	SPRING, 5/8 IN. check valve, start tank fill package	.	.	.	.	.	1	
-19		406119	.	SEAL, Check valve, 5/8 IN.	.	.	.	.	.	1	
-20		553780	.	POPPET, Check valve, 1/2 IN. (1000 PSI)	.	.	.	.	.	1	
-21		553843	.	SPRING, Compression	.	.	.	.	.	1	
-22		553842	.	SEAL, Check valve, 1/2 IN. (1500 PSI)	.	.	.	.	.	1	
		557948	.	BODY ASSY, Tank support-and-fill valve package	.	.	.	.	.	1	
-23		RE131-5001-0004	.	BEARING	.	.	.	.	.	1	
-24		MS21208F4-20	.	INSERT	.	.	.	.	.	4	
-25		557948-3	.	BODY, Tank support-and-fill valve package	.	.	.	.	.	1	
-26		RD171-4004-0002	.	TAG	.	.	.	.	.	1	

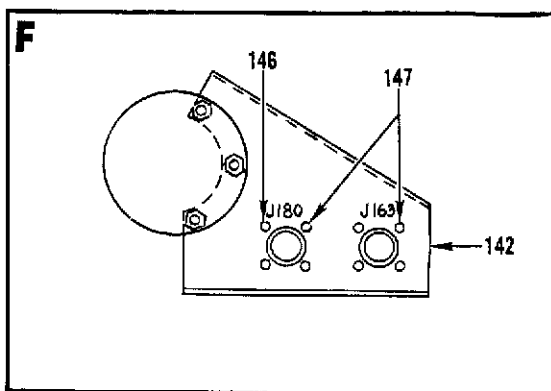


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Figure 28. Customer Connect Electrical System Installation (Sheet 1 of 12)



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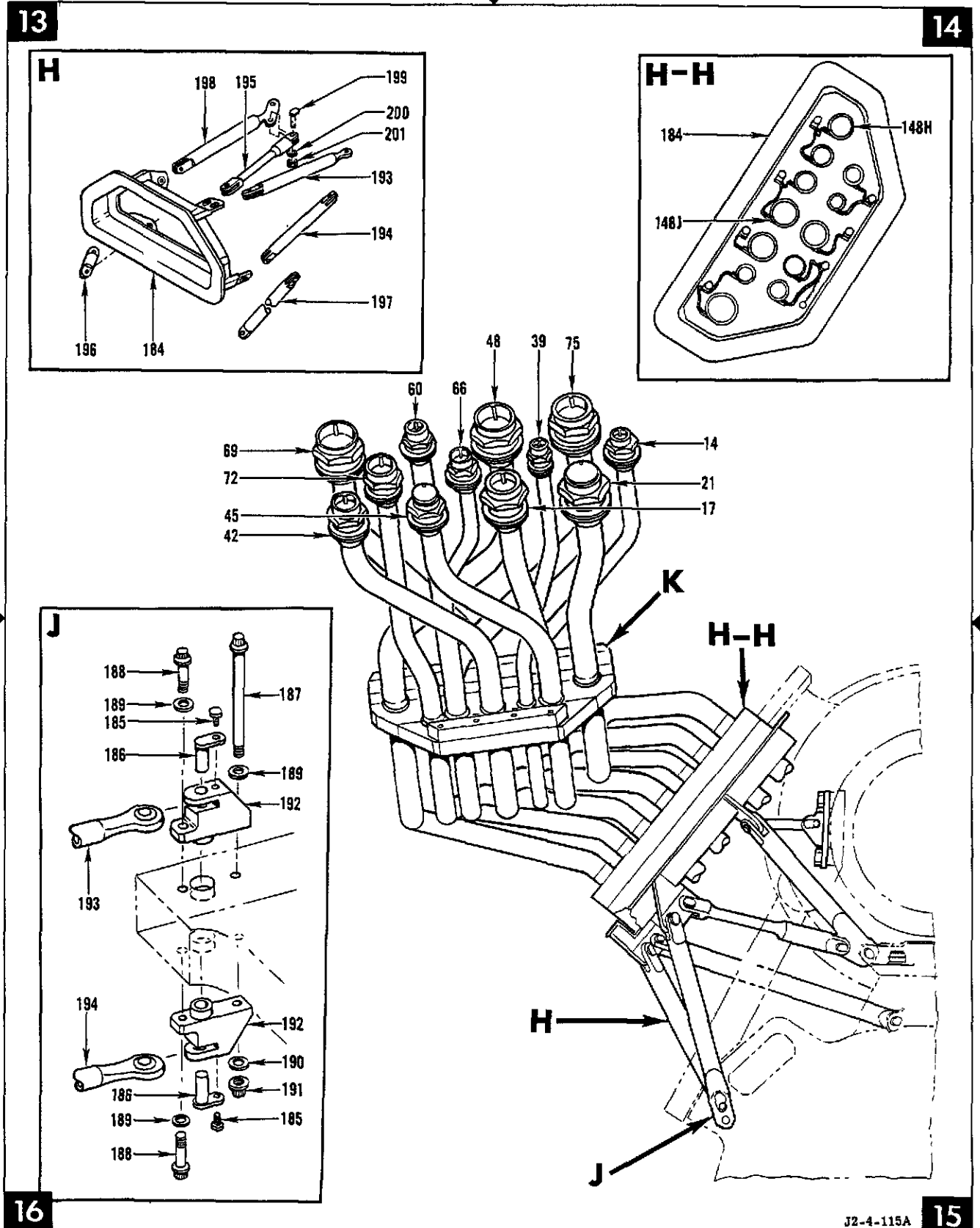


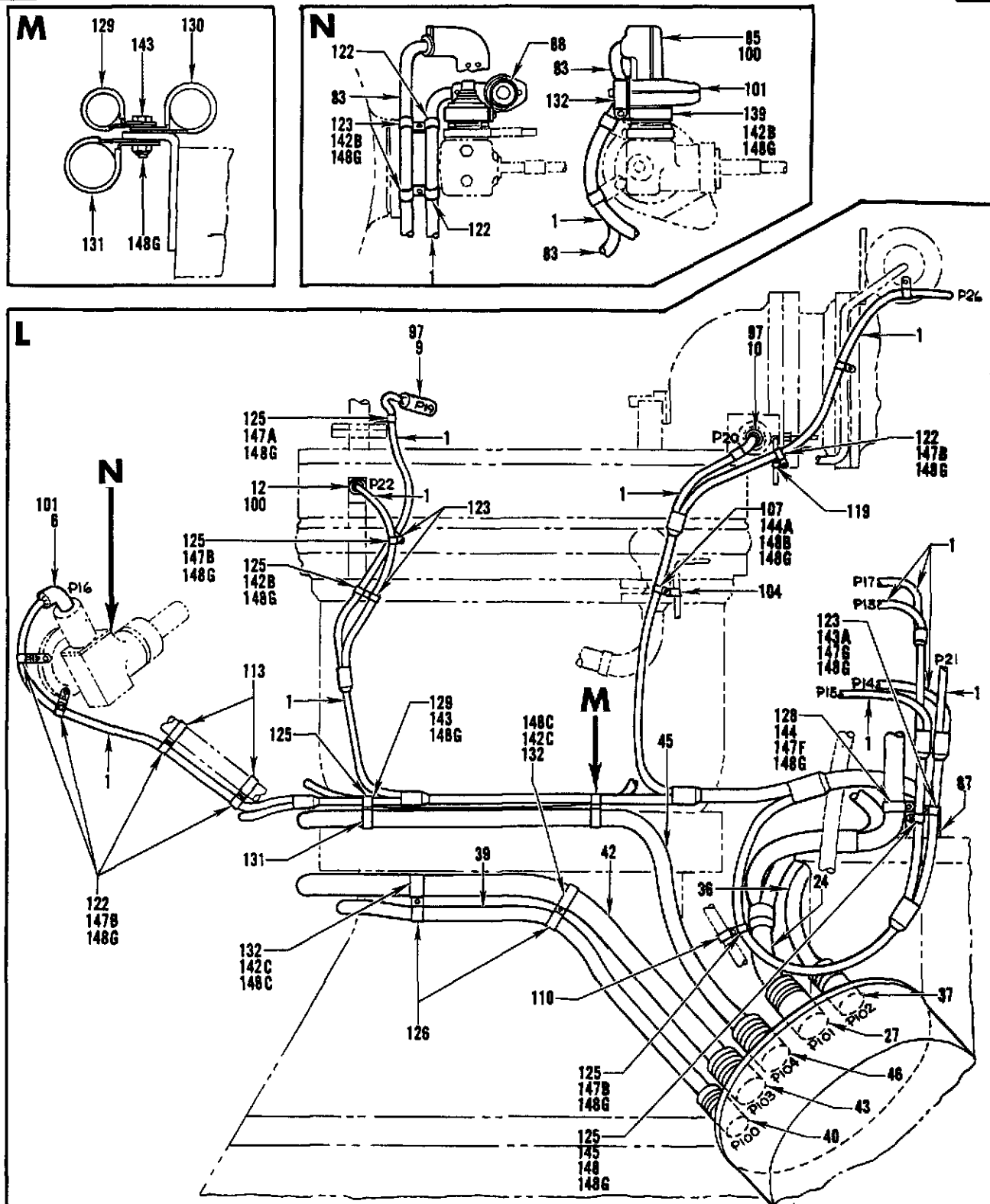
Figure 28. Customer Connect Electrical System Installation (Sheet 4 of 12)



Figure 28. Customer Connect Electrical System Installation (Sheet 5 of 12)

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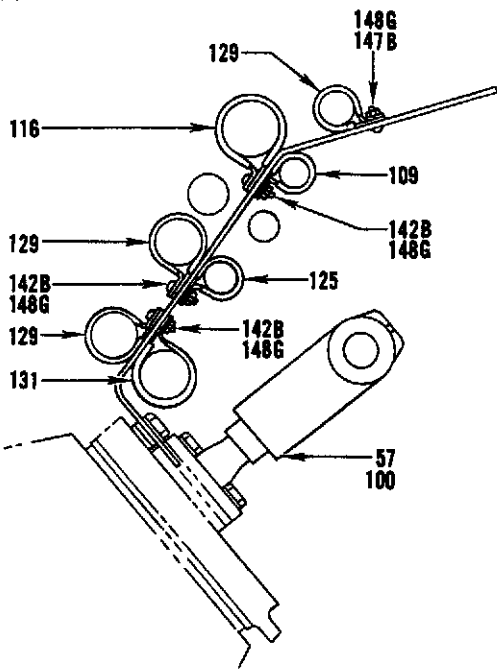
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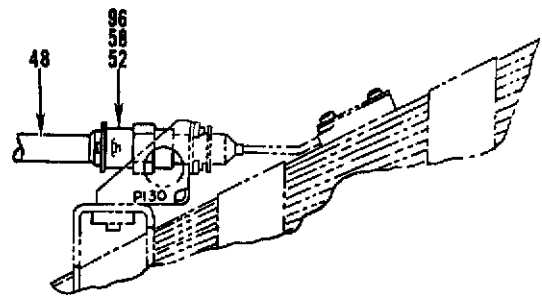
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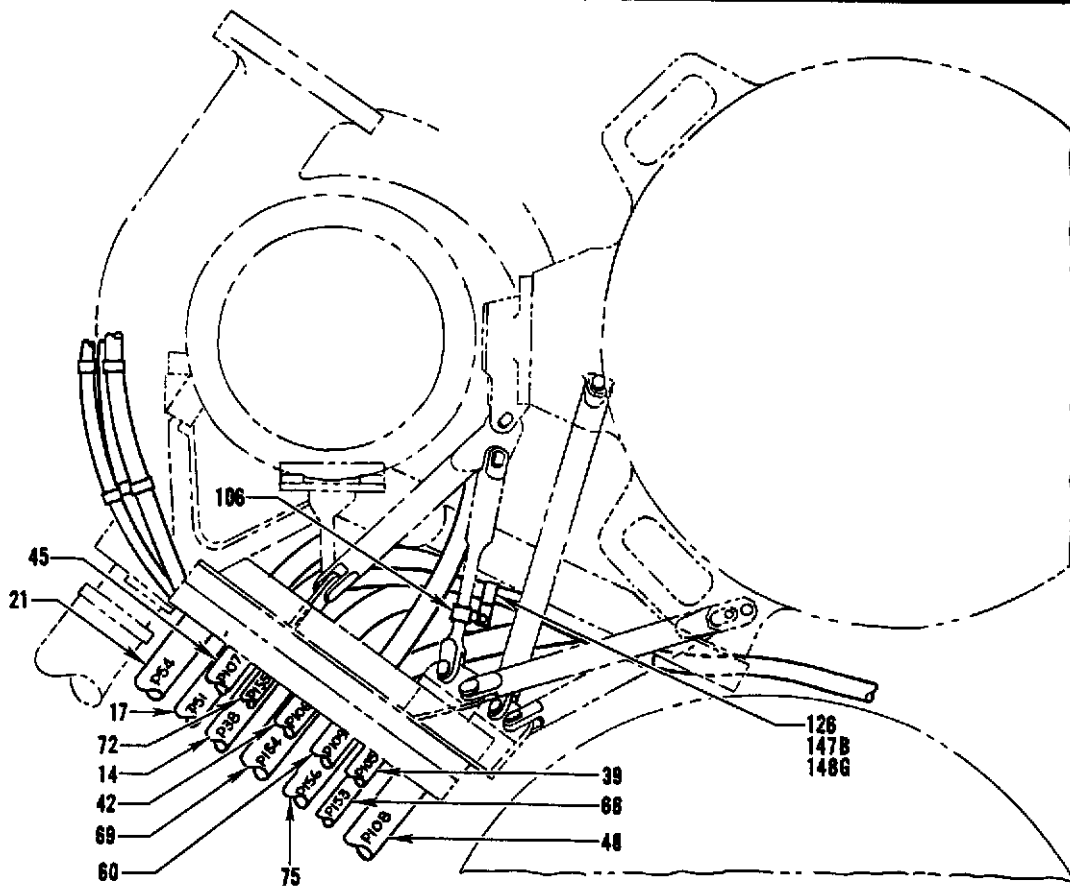
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TYPICAL 2 PLACES

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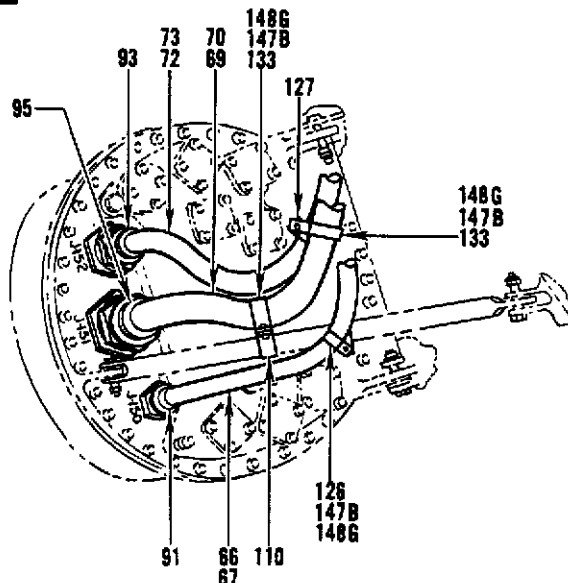
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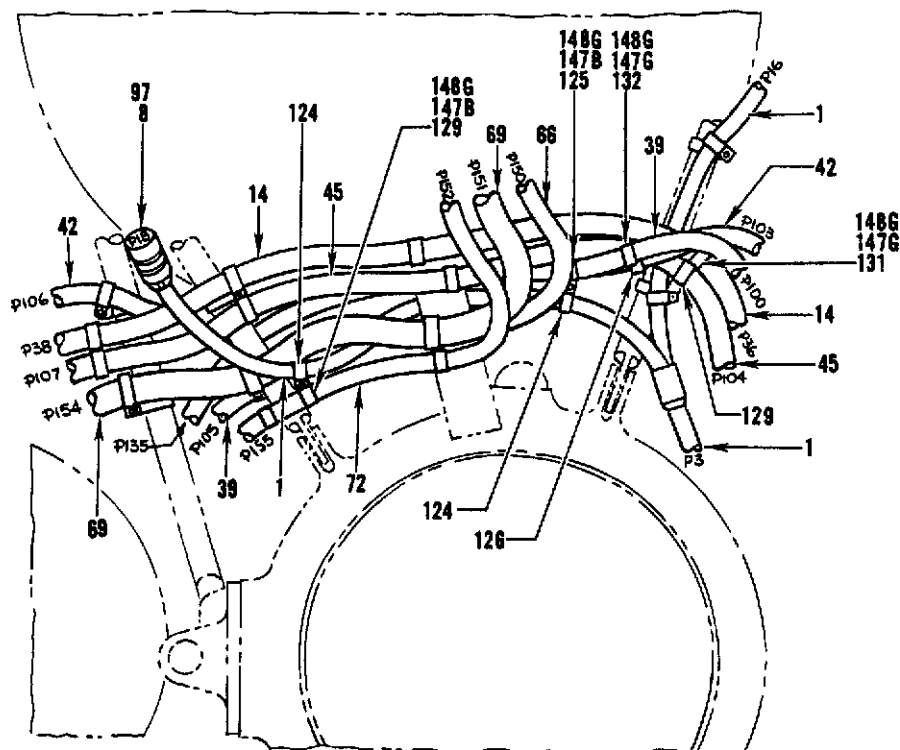
Figure 28. Customer Connect Electrical System Installation (Sheet 7 of 12)

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J2-4-122B

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2-110 Change No. 1-18 September 1970

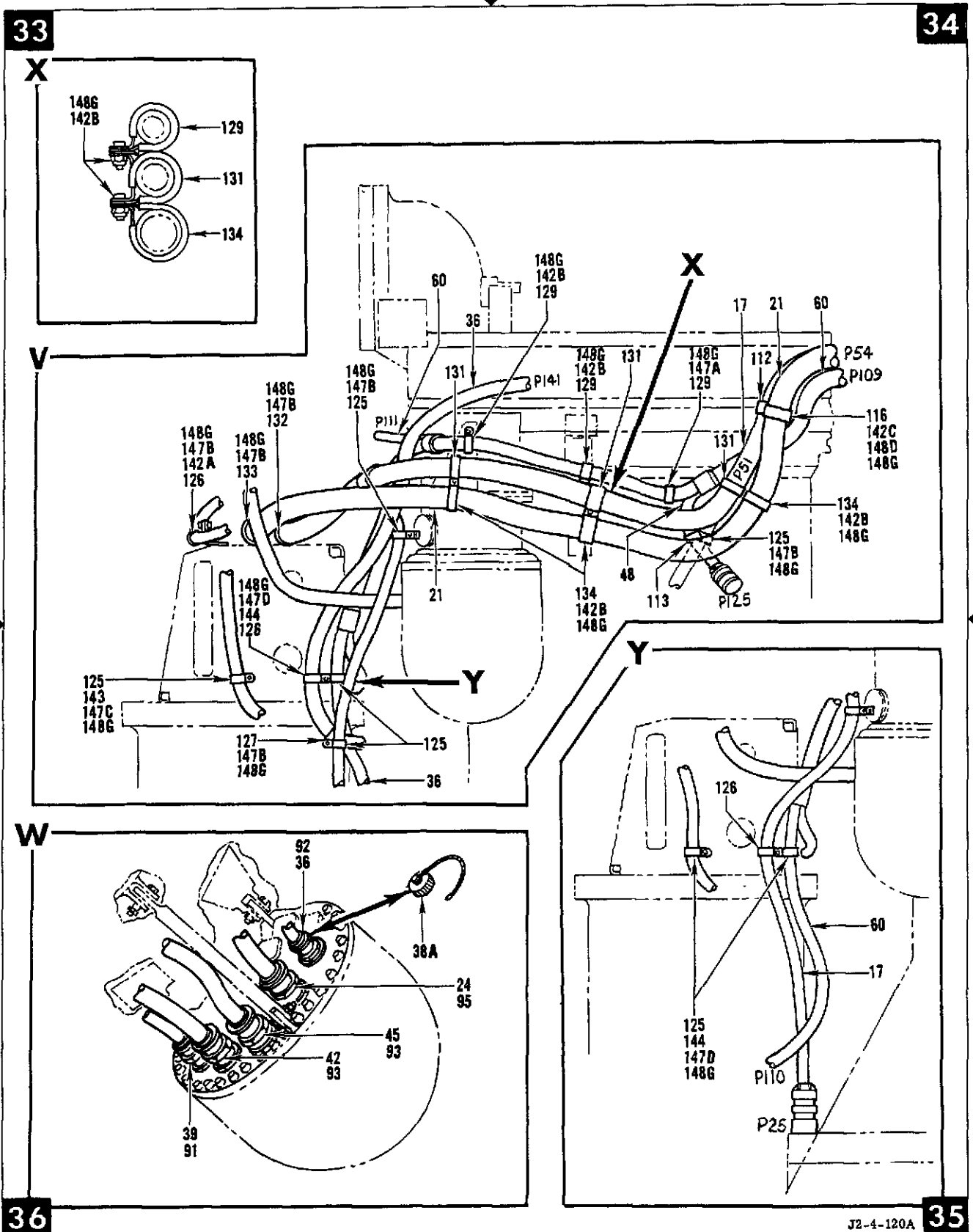


Figure 28. Customer Connect Electrical System Installation (Sheet 9 of 12)



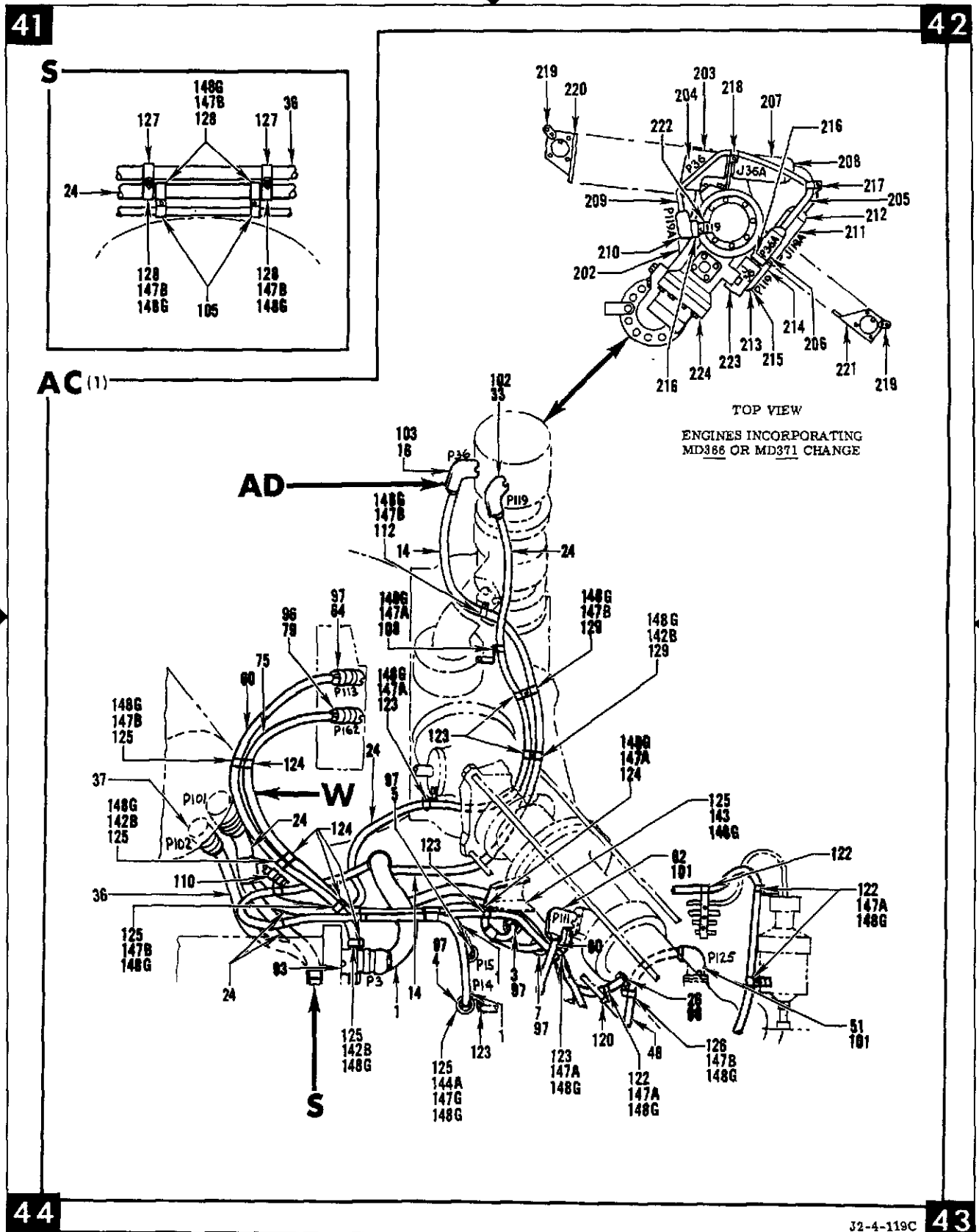
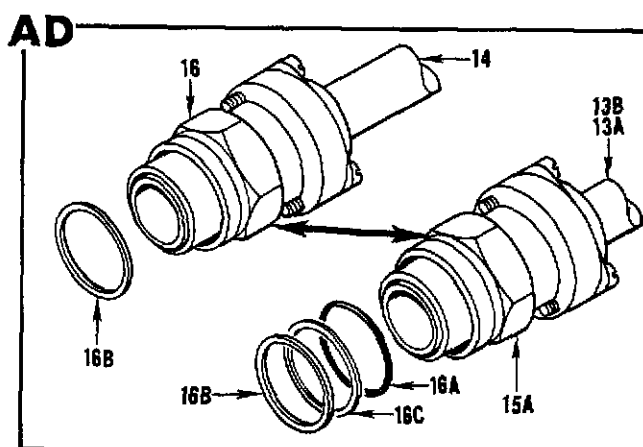


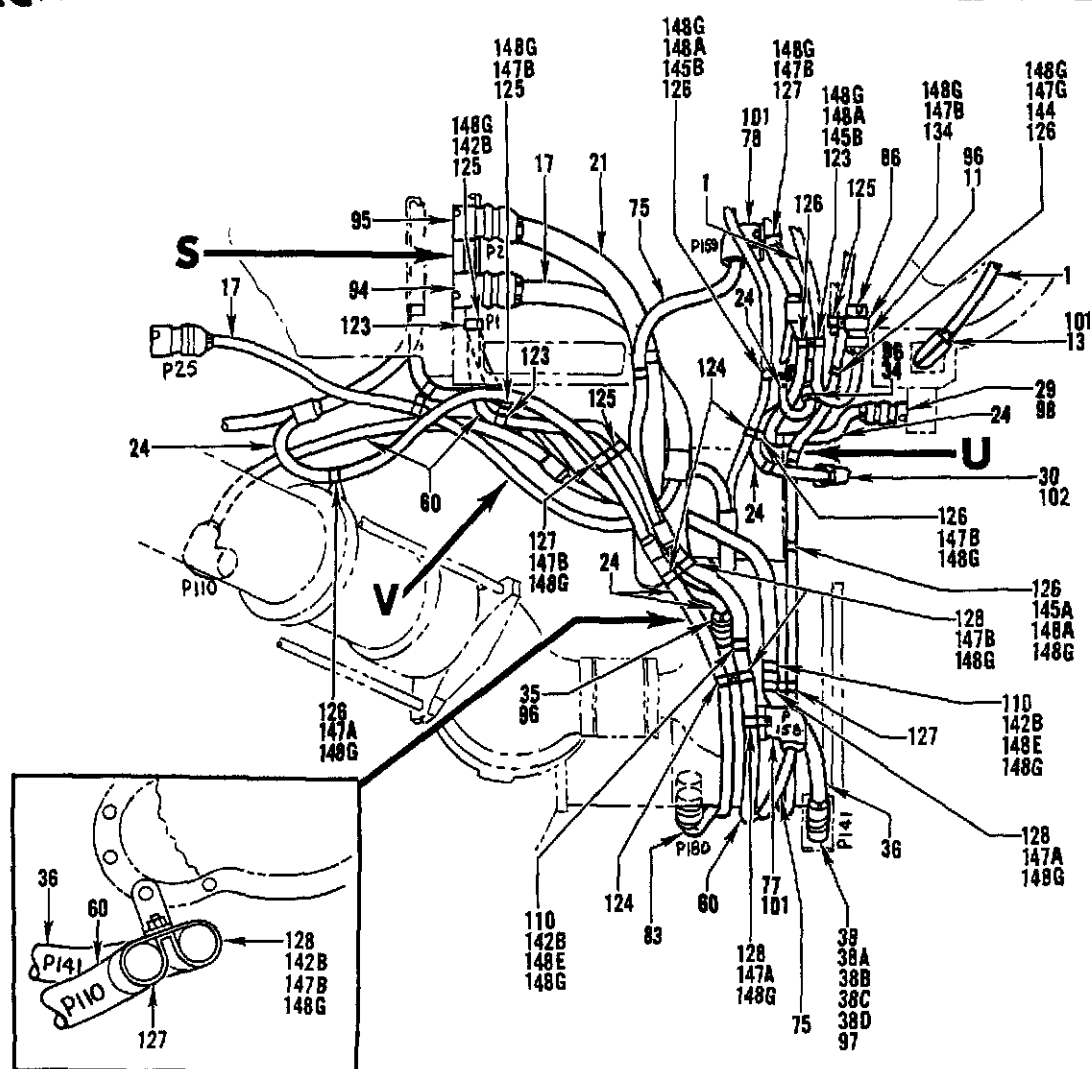
Figure 28. Customer Connect Electrical System Installation (Sheet 11 of 12)

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AC(2)



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J2-4-123D

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2-114 Change No. 1-18 September 1970

FIG & INDEX NO.	ZONE NO	PART NUMBER	DESCRIPTION							UNITS PER ASSY	USABLE ON CODE
			1	2	3	4	5	6	7		
28-		103850	CUSTOMER CONNECT SYSTEM INSTALLATION CUSTOMER CONNECT ELECTRICAL SYSTEM INSTL (See figure 1, index 7, ... for REQMT)							REF	
- 1		503157 (a)	ARMORED HARNESS ASSY, Flexible, engine control (Control system armored harness)							1	GSA
		19-704548	TUBE, Heat shrinkable (Use -1, -2, and -3 as applicable)							AR	
		19-704550	TUBE, Heat shrinkable (Use -2 and -3 as applicable)							AR	
		19-704549	MOLDING, Heat shrinkable (Use -1 and -2 as applicable)							AR	
- 2		503162-11	PLUG ASSY, Electrical, 28-21P shell size (Electrical control assembly) .. (Altered from NA5-27556T2821P) (P3)							1	GSA
- 3		503172-91	PLUG ASSY, Electrical, 14S-2S shell size (Helium control solenoid) (Altered from NA5-27556T142S) (P13)							1	GSA
- 4		503172-91	PLUG ASSY, Electrical, 14S-2S shell size (Ignition-phase control solenoid) (Altered from NA5-27556T142S) (P14)							1	GSA
- 5		503172-91	PLUG ASSY, Electrical, 14S-2S shell size (Mainstage control solenoid) ... (Altered from NA5-27556T142S) (P15)							1	GSA
- 6		503173-111	PLUG ASSY, Electrical, 14S-5S shell size (Start tank pressure switch) ... (Altered from NA5-27556T145S) (P16)							1	GSA
- 7		503172-91	PLUG ASSY, Electrical, 14S-2S shell size (Helium emergency vent control) (Altered from NA5-27556T143S) (P17)							1	GSA
- 8		503172-91	PLUG ASSY, Electrical, 14S-2S shell size (Start tank discharge control ... solenoid) (Altered from NA5-27556T142S) (P18)							1	GSA
- 9		503172-131	PLUG ASSY, Electrical, 14S-6S shell size (Ignition detector probe) (Altered from NA5-27556T146S) (P19)							1	GSA
-10		503172-111	PLUG ASSY, Electrical, 14S-5S shell size (Mainstage OK pressure switch.. NO. 1) (Altered from NA5-27556T145S) (P20)							1	GSA
-11		503172-41	PLUG ASSY, Electrical, 10SL-3S shell size (Sequence control valve position switch) (Altered from NA5-27556T103S) (P21)							1	GSA
-12		503173-41	PLUG ASSY, Electrical, 10SL-3S shell size (Fuel injection temperature ... sensor) (Altered from NA5-27556T103S) (P22)							1	GSA
-13		503173-111	PLUG ASSY, Electrical, 14S-5S shell size (Mainstage OK pressure switch.. NO. 2) (Altered from NA5-27556T145S) (P26)							1	GSA
-13A		503164	ARMORED CABLE ASSY, Flexible, propellant utilization valve to P38							1	FZB
-13B		503164-11	ARMORED CABLE ASSY, Flexible, propellant utilization valve to P38							1	FRB
-14		503159	ARMORED HARNESS ASSY, Flexible, propellant utilization valve to P38							1	GSA
-14A		19-704548-8	TUBE, Heat shrinkable							AR	
		501727-301	PLUG ASSY, Electrical, 20-29P shell size (Electrical interface)							1	FPB
-15		503172-301	PLUG ASSY, Electrical, 20-29P shell size (Electrical interface)							1	GSA
-15A		502272-311	PLUG ASSY, Electrical, 20-29S shell size (Propellant utilization valve) ... (Altered from RD414-1009-0042) (P36)							1	FPB
-16		503173-311	PLUG ASSY, Electrical, 20-29S shell size (Propellant utilization valve) ... (Altered from NA5-27556T2029S) (P36)							1	GSA
-16A		RD262-3002-0020	GASKET (Round) (NHA 502272-311)							1	
-16B		RD261-2006-0020	GASKET (Rectangular) (NHA 103850, 502272-311 and 503173-311)							1	
-16C		703935-5	SPACER, Electrical connector (NHA 103850 and 502272-311 only)							1	
-17		503165	ARMORED HARNESS ASSY, Flexible, engine control package to P51							1	FZB
-17		503165-11	ARMORED HARNESS ASSY, Flexible, engine control package to P51							1	FRB
-17		503160 (a)	ARMORED HARNESS ASSY, Flexible, engine control package to P51							1	GSA
		19-704548-4	TUBE, Heat shrinkable							3	
		19-704550-4	TUBE, Heat shrinkable							1	
		19-704549-4	MOLDING, Heat shrinkable							1	
		19-704549-9	MOLDING, Heat shrinkable							1	
-18		501727-511	PLUG ASSY, Electrical, 32-7S shell size (Electrical control assembly--... ECA) (Altered from RD414-1009-0064) (P1)							1	FPB
-18		503172-511	PLUG ASSY, Electrical, 32-7S shell size (Electrical control assembly--... ECA) (Altered from NA5-27556T327S) (P1)							1	GSA
-19		501727-211	PLUG ASSY, Electrical, 18-1S shell size (Facility instrumentation connector) (Altered from RD414-1009-0026) (P25)							1	FPB
-19		503172-211	PLUG ASSY, Electrical, 18-1S shell size (Facility instrumentation connector) (Altered from NA5-27556T181S) (P25)							1	GSA
-20		501727-501	PLUG ASSY, Electrical, 32-7P shell size (Electrical interface)							1	FPB
-20		503172-501	PLUG ASSY, Electrical, 32-7P shell size (Electrical interface)							1	GSA
			(Altered from NA5-27556T327P) (P51)								
-21		503166	ARMORED HARNESS ASSY, Flexible, control package to P54							1	FZB
-21		503166-11	ARMORED HARNESS ASSY, Flexible, control package to P54							1	FRB
-21		503158 (a)	ARMORED HARNESS ASSY, Flexible, control package to P54							1	GSA
		19-704548-4	TUBE, Heat shrinkable							4	
-22		501727-571	PLUG ASSY, Electrical, 36-10S shell size (Electrical interface)							1	FRB
			(Altered from RD414-1009-0070) (P54)								
-22		503172-571	PLUG ASSY, Electrical, 36-10S shell size (Electrical interface)							1	GSA
			(Altered from NA5-27556T3610S) (P54)								
-23		501727-561	PLUG ASSY, Electrical, 36-10P shell size (Electrical control assembly) .. (Altered from RD414-1009-0069) (P2)							1	FRB

(a) For interchangeability status, refer to the Component Interchangeability List.

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FIG & INDEX NO	ZONE NO	PART NUMBER	DESCRIPTION							UNITS PER ASSY.	USABLE ON CODE
			1	2	3	4	5	6	7		
28-23		503162	.	.	PLUG ASSY, Electrical, 36-10P shell size (Electrical control assembly) . . .					1	GSA
					(Altered from NA5-27556T3610P) (P2)						
-24		704478	(a)	.	ARMORED HARNESS ASSY, Flexible, position indicators to P101					1	GSA
		19-704548-2		.	TUBE, Heat shrinkable					AR	
		19-704550		.	TUBE, Heat shrinkable (Use -2, -3, and -4 as applicable)					AR	
		19-704549		.	MOLDING, Heat shrinkable (Use -1, -3, and -11 as applicable)					AR	
-25		503174-211		.	RECEPTACLE ASSY, Electrical, 18-1P shell size (Facility					1	GSA
				.	instrumentation connector) (Altered from NA5-27550T181P) (J25)						
-26		503172-51		.	PLUG ASSY, Electrical, 10SL-4S shell size (Augmented spark igniter					1	GSA
				.	valve position indicator) (Altered from NA5-27556T104S) (P120)						
-27		503172-561		.	PLUG ASSY, Electrical, 36-10P shell size (Primary instrumentation					1	GSA
				.	package) (Altered from NA5-27556T3610P) (P101)						
-28		503172-171		.	PLUG ASSY, Electrical, 16S-1S shell size (Main fuel valve position					1	GSA
				.	indicator) (Altered from NA5-27556T161S) (P114)						
-29		503172-171		.	PLUG ASSY, Electrical, 16S-1S shell size (Main oxidizer valve position					1	GSA
				.	indicator) (Altered from NA5-27556T161S) (P115)						
-30		503173-171		.	PLUG ASSY, Electrical, 16S-1S shell size (Gas generator control valve					1	GSA
				.	position indicator) (Altered from NA5-27556T161S) (P116)						
-31		503173-171		.	PLUG ASSY, Electrical, 16S-1S shell size (Oxidizer turbine bypass valve					1	GSA
				.	position indicator) (Altered from NA5-27556T161S) (P117)						
-32		503172-171		.	PLUG ASSY, Electrical, 16S-1S shell size (Start tank discharge valve					1	GSA
				.	position indicator) (Altered from NA5-27556T161S) (P118)						
-33		503173-171		.	PLUG ASSY, Electrical, 16S-1S shell size (Propellant utilization valve					1	GSA
				.	position indicator) (Altered from NA5-27556T161S) (P119)						
-34		503172-51		.	PLUG ASSY, Electrical, 10SL-4S shell size (Oxidizer bleed valve closed					1	GSA
				.	position indicator) (Altered from NA5-27556T104S) (P132)						
-35		503172-51		.	PLUG ASSY, Electrical, 10SL-4S shell size (Fuel bleed valve closed					1	GSA
				.	position indicator) (Altered from NA5-27556T105S) (P133)						
-36		703250		.	ARMORED CABLE ASSY, Flexible, fuel pump interstage pressure					1	FZB
-36		703250-11		.	ARMORED CABLE ASSY, Flexible, fuel pump interstage pressure					1	FRB
-36		704487	(a)	.	ARMORED HARNESS ASSY, Flexible, fuel pump interstage pressure					1	GSB
		19-704548-2		.	TUBE, Heat shrinkable					1	
		19-704549-7		.	MOLDING, Heat shrinkable					1	
-37		501727-341		.	PLUG ASSY, Electrical, 22-14P shell size (Primary instrumentation					1	FPB
				.	package) (Altered from RD414-1009-0043) (P102)						
-37		503172-341		.	PLUG ASSY, Electrical, 22-14P shell size (Primary instrumentation					1	GSB
				.	package) (Altered from NA5-27556T2214P) (P102)						
-38		703745		.	PLUG ASSY, Electrical, pressure transducer, 14S-6S shell size					1	FPB
				.	(Fuel turbopump interstage pressure) (PF6) (Altered from						
				.	RD414-1009-0014) (P141)						
-38		704115		.	PLUG ASSY, Electrical, pressure transducer, 14S-6S shell size					1	GSB
				.	(Fuel turbopump interstage pressure) (PF6) (Altered from						
				.	NA5-27556T146S) (P141)						
-38A		RD265-6002-1008		.	CAP ASSY					1	JSA
-38B		RD273-1023-0005		.	SLEEVE (RD273-1029-0002 sleeve may be installed) (NHA 702527)					2	VAR
-38C		703955		.	TUBE ASSY, Fuel interstage pressure, flight instrumentation (NHA 702527)					1	VAR
-38D		NA5-27412T2T		.	TRANSDUCER, Absolute pressure, DC-DC type (Fuel interstage pressure)					1	VAR
				.	(Tap PF6) (Alternate NA5-27440T2T) (J141) (NHA 702527)						
		NAS1003-12A		.	BOLT (AP)					4	
		703953		.	SPACER, Support, fuel interstage pressure transducer (AP)					1	
		LD153-0013-0001		.	WASHER (AP)					4	
		703954		.	WASHER, Support, fuel interstage pressure transducer (AP)					4	
(a) For interchangeability status, refer to the Component Interchangeability List.											

FIG. & INDEX NO.	ZONE NO.	PART NUMBER	DESCRIPTION							UNITS PER ASSY	USABLE ON CODE
			1	2	3	4	5	6	7		
28-		NAS879C3W	.	.	.	.	.	.	.	4	
-39		704489	.	.	.	.	.	.	.	1	FZB
-39		704489-11	.	.	.	.	.	.	.	1	FRB
-39		704479	(a)	.	.	.	.	.	.	1	GSA
		19-704548-2	.	.	.	.	.	.	.	3	
		19-704549-4	.	.	.	.	.	.	.	1	
-40		501727-211	.	.	.	.	.	.	.	1	FPB
-40		503172-211	.	.	.	.	.	.	.	1	GSA
-41		501727-201	.	.	.	.	.	.	.	1	FPB
-41		503172-201	.	.	.	.	.	.	.	1	GSA
-42		704490	.	.	.	.	.	.	.	1	FZB
-42		704490-11	.	.	.	.	.	.	.	1	FRB
-42		704480	(a)	.	.	.	.	.	.	1	GSA
		19-704548-3	.	.	.	.	.	.	.	3	
		19-704549-9	.	.	.	.	.	.	.	1	
-43		501727-491	.	.	.	.	.	.	.	1	FPB
-43		503172-491	.	.	.	.	.	.	.	1	GSA
-44		501727-481	.	.	.	.	.	.	.	1	FPB
-44		503172-481	.	.	.	.	.	.	.	1	GSA
-45		704491	.	.	.	.	.	.	.	1	FZB
-45		704491-11	.	.	.	.	.	.	.	1	FRB
-45		704481	(a)	.	.	.	.	.	.	1	GSA
		19-704548-3	.	.	.	.	.	.	.	3	
		19-704549-9	.	.	.	.	.	.	.	1	
-46		501727-481	.	.	.	.	.	.	.	1	FPB
-46		503172-481	.	.	.	.	.	.	.	1	GSA
-47		501727-491	.	.	.	.	.	.	.	1	FPB
-47		503172-491	.	.	.	.	.	.	.	1	GSA
-48		704496	.	.	.	.	.	.	.	1	FZB
-48		704496-11	.	.	.	.	.	.	.	1	FRB
-48		704485	(a)	.	.	.	.	.	.	1	GSA
		19-704548	.	.	.	.	.	.	.	AR	
		19-704550	.	.	.	.	.	.	.	AR	
		19-704549	.	.	.	.	.	.	.	AR	
-49		502272-131	.	.	.	.	.	.	.	1	FPB
-49		503173-131	.	.	.	.	.	.	.	1	GSA
-50		502272-41	.	.	.	.	.	.	.	1	FPB
-50		502937-631	.	.	.	.	.	.	.	1	GSA
-51		502272-131	.	.	.	.	.	.	.	1	FPB
-51		503173-131	.	.	.	.	.	.	.	1	GSA
-52		501727-41	.	.	.	.	.	.	.	1	FPB
-52		503172-41	.	.	.	.	.	.	.	1	GSA
-53		502272-41	.	.	.	.	.	.	.	1	FPB
-53		502937-631	.	.	.	.	.	.	.	1	GSA
-54		502272-41	.	.	.	.	.	.	.	1	FPB
-54		502937-631	.	.	.	.	.	.	.	1	GSA
-55		502272-41	.	.	.	.	.	.	.	1	FPB
-55		503173-41	.	.	.	.	.	.	.	1	GSA
-56		501727-131	.	.	.	.	.	.	.	1	FPB

(a) For interchangeability status, refer to the Component Interchangeability List.

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FIG. & INDEX NO.	ZONE NO.	PART NUMBER	DESCRIPTION							UNITS PER ASSY	USABLE ON CODE
			1	2	3	4	5	6	7		
28-56		503172-131	.	.	PLUG ASSY, Electrical, 14S-6S shell size (Start tank gas temperature) . . .					1	GSA
-57		502272-41	.	.	PLUG ASSY, Electrical, 10SL-3S shell size (Helium tank gas					1	FPB
-57		503173-41	.	.	PLUG ASSY, Electrical, 10SL-3S shell size (Helium tank gas					1	GSA
-58		501727-41	.	.	PLUG ASSY, Electrical, 10SL-3S shell size (Thrust chamber jacket					1	FPB
-58		503172-41	.	.	PLUG ASSY, Electrical, 10SL-3S shell size (Thrust chamber jacket					1	GSA
-59		501727-541	.	.	PLUG ASSY, Electrical, 36-8P shell size (Electrical interface)					1	FPB
-59		503172-541	.	.	PLUG ASSY, Electrical, 36-8P shell size (Electrical interface)					1	GSA
-60		704495	.	.	ARMORED HARNESS ASSY, Flexible, flow and speed to P109					1	FZB
-60		704495-11	.	.	ARMORED HARNESS ASSY, Flexible, flow and speed to P109					1	FRB
-60		704494	(a)	.	ARMORED HARNESS ASSY, Flexible, flow and speed to P109					1	GSA
		19-704548	.	.	TUBE, Heat shrinkable (Use -2 and -3 as applicable)					AR	
		19-704550	.	.	TUBE, Heat shrinkable (Use -2 and -3 as applicable)					AR	
		19-704549-3	.	.	MOLDING, Heat shrinkable					2	
-61		502272-91	.	.	PLUG ASSY, Electrical, 14S-2S shell size (Main fuel flowrate)					1	FPB
-61		503173-91	.	.	PLUG ASSY, Electrical, 14S-2S shell size (Main fuel flowrate)					1	GSA
-62		502272-91	.	.	PLUG ASSY, Electrical, 14S-2S shell size (Main oxidizer flowrate)					1	
-62		503173-91	.	.	PLUG ASSY, Electrical, 14S-2S shell size (Main oxidizer flowrate)					1	GSA
-63		501727-91	.	.	PLUG ASSY, Electrical, 14S-2S shell size (Fuel turbopump speed)					1	FPB
-63		503172-91	.	.	PLUG ASSY, Electrical, 14S-2S shell size (Fuel turbopump speed)					1	GSA
-64		501727-91	.	.	PLUG ASSY, Electrical, 14S-2S shell size (Oxidizer turbopump speed)					1	FPB
-64		503172-91	.	.	PLUG ASSY, Electrical, 14S-2S shell size (Oxidizer turbopump speed)					1	GSA
-65		501727-341	.	.	PLUG ASSY, Electrical, 22-14P shell size (Electrical interface)					1	FPB
-65		503172-341	.	.	PLUG ASSY, Electrical, 22-14P shell size (Electrical interface)					1	GSA
-66		704492	.	.	ARMORED CABLE ASSY, Flexible, auxiliary package to P153					1	FZB
-66		704492-11	.	.	ARMORED CABLE ASSY, Flexible, auxiliary package to P153					1	FRB
-66		704482	(a)	.	ARMORED HARNESS ASSY, Flexible, auxiliary package to P153					1	GSA
		19-704548-2	.	.	TUBE, Heat shrinkable					3	
		19-704549-4	.	.	MOLDING, Heat shrinkable					1	
-67		501727-211	.	.	PLUG ASSY, Electrical, 18-1S shell size (Auxiliary instrumentation					1	FPB
-67		503172-211	.	.	PLUG ASSY, Electrical, 18-1S shell size (Auxiliary instrumentation					1	GSA
-68		501727-361	.	.	PLUG ASSY, Electrical, 22-19P shell size (Electrical interface)					1	FPB
-68		503172-361	.	.	PLUG ASSY, Electrical, 22-19P shell size (Electrical interface)					1	GSA
-69		704493	.	.	ARMORED CABLE ASSY, Flexible, auxiliary package to P154					1	FZB
-69		704493-11	.	.	ARMORED CABLE ASSY, Flexible, auxiliary package to P154					1	FRB
-69		704488	(a)	.	ARMORED HARNESS ASSY, Flexible, auxiliary package to P154					1	GSA
		19-704548-4	.	.	TUBE, Heat shrinkable					3	
		19-704549-11	.	.	MOLDING, Heat shrinkable					1	
-70		501727-571	.	.	PLUG ASSY, Electrical, 36-10S shell size (Auxiliary instrumentation					1	FPB
-70		503172-571	.	.	PLUG ASSY, Electrical, 36-10S shell size (Auxiliary instrumentation					1	GSA
-71		501727-561	.	.	PLUG ASSY, Electrical, 36-10P shell size (Electrical interface)					1	FPB
-71		503172-561	.	.	PLUG ASSY, Electrical, 36-10P shell size (Electrical interface)					1	GSA
-72		704494	.	.	ARMORED CABLE ASSY, Flexible, engine control package to P155					1	FZB
-72		704494-11	.	.	ARMORED CABLE ASSY, Flexible, engine control package to P155					1	FRB
-72		704483	(a)	.	ARMORED HARNESS ASSY, Flexible, engine control package to P155					1	GSA
		19-704548-8	.	.	TUBE, Heat shrinkable					3	
		19-704549-9	.	.	MOLDING, Heat shrinkable					1	
-73		501727-491	.	.	PLUG ASSY, Electrical, 28-21S shell size (Auxiliary instrumentation					1	FPB
-73		503172-491	.	.	PLUG ASSY, Electrical, 28-21S shell size (Auxiliary instrumentation					1	GSA

(a) For interchangeability status, refer to the Component Interchangeability List.

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FIG. & INDEX NO.	ZONE NO.	PART NUMBER	DESCRIPTION							UNITS PER ASSY.	USABLE ON CODE
			1	2	3	4	5	6	7		
28-74		501727-421	.	.	PLUG ASSY, Electrical, 24-28P shell size (Electrical interface)					1	FPB
		(Altered from RD414-1009-0053) (P155)									
-74		503172-421	.	.	PLUG ASSY, Electrical, 24-28P shell size (Electrical interface)					1	GSA
		(Altered from NA5-27556T2428P) (P155)									
-75		704497	.	.	ARMORED HARNESS ASSY, Flexible, temperature to P156					1	FZB
-75		704497-11	.	.	ARMORED HARNESS ASSY, Flexible, temperature to P156					1	FRB
-75		704486	.	.	ARMORED HARNESS ASSY, Flexible, temperature to P156					1	NHB
-75		704486-11	.	.	ARMORED HARNESS ASSY, Flexible, temperature to P156					1	NHA
		19-704548	.	.	TUBE, Heat shrinkable (Use -2 and -4 as applicable)					AR	
		19-704550	.	.	TUBE, Heat shrinkable (Use -2, -3, and -4 as applicable)					AR	
		19-704549-2	.	.	MOLDING, Heat shrinkable					3	
-76		502272-131	.	.	PLUG ASSY, Electrical, 14S-6S shell size (Heat exchanger oxidizer					1	FPB
		outlet temperature) (HOT2) (Altered from RD414-1009-0014) (P157)									
-76		503173-131	.	.	PLUG ASSY, Electrical, 14S-6S shell size (Heat exchanger oxidizer					1	GSA
		outlet temperature) (HOT2) (Altered from NA5-27556T146S) (P157)									
-77		502272-131	.	.	PLUG ASSY, Electrical, 14S-6S shell size (Fuel bleed valve					1	FPB
		temperature) (GFT1) (Altered from RD414-1009-0014) (P158)									
-77		503173-131	.	.	PLUG ASSY, Electrical, 14S-6S shell size (Fuel bleed valve					1	GSA
		temperature) (GFT1) (Altered from NA5-27556T146S) (P158)									
-78		502272-131	.	.	PLUG ASSY, Electrical, 14S-6S shell size (Oxidizer bleed valve					1	FPB
		temperature) (GOT2) (Altered from RD414-1009-0014) (P159)									
-78		503173-131	.	.	PLUG ASSY, Electrical, 14S-6S shell size (Oxidizer bleed valve					1	GSA
		temperature) (GOT2) (Altered from NA5-27556T146S) (P159)									
-78A		502272-41	.	.	PLUG ASSY, Electrical, 10SL-3S shell size (Fuel pump bearing					1	FPB
		temperature) (PST1) (Altered from RD414-1009-0005)									
		(See figure 18, index 42A, for illustration) (P161)									
-79		501727-41	.	.	PLUG ASSY, Electrical, 10SL-3S shell size (Oxidizer turbopump bearing . .					1	FPB
		coolant temperature) (POT4) (Altered from									
		RD414-1009-0005) (P162)									
-79		503172-41	.	.	PLUG ASSY, Electrical, 10SL-3S shell size (Oxidizer turbopump bearing . .					1	GSA
		coolant temperature) (POT4) (Altered from									
		NA5-27556T103S) (P162)									
-80		501740-41	.	.	RECEPTACLE ASSY, Electrical, 10SL-3P shell size (Spare to P156					1	FPB
		harness) (Altered from RD414-1010-0005) (J183)									
-80		503174-41	.	.	RECEPTACLE ASSY, Electrical, 10SL-3P shell size (Spare to P156					1	GSA
		harness) (Altered from NA5-27550T103P) (J183)									
-81		501740-41	.	.	RECEPTACLE ASSY, Electrical, 10SL-3P shell size (Spare to P156					1	FPB
		harness) (Altered from RD414-1010-0005) (J180)									
-81		503174-41	.	.	RECEPTACLE ASSY, Electrical, 10SL-3P shell size (Spare to P156					1	GSA
		harness) (Altered from NA5-27550T103P) (J180)									
-82		501727-581	.	.	PLUG ASSY, Electrical, 36-15P shell size (Electrical interface)					1	FPB
		(Altered from RD414-1009-0071) (P156)									
-82		503172-581	.	.	PLUG ASSY, Electrical, 36-15P shell size (Electrical interface)					1	GSA
		(Altered from NA5-27556T3615P) (P156)									
-83		502265	.	.	WIRING HARNESS ASSY, P180 to P55, dump valve					1	NHA
-84		503173-41	.	.	PLUG ASSY, Electrical, 10SL-3S shell size (Start tank emergency					1	NHA
		vent valve harness) (Altered from NA5-27556T103S) (P180)									
-85		503173-71	.	.	PLUG ASSY, Electrical, 12S-3S shell size (Start tank emergency					1	NHA
		vent valve) (Altered from NA5-27556T123S) (P55)									
-86		502957	.	.	RECEPTACLE ASSY, Jumper, 10SL-3P shell size (Sequence control					1	GSA
		valve closed) (J21)									
-87		502836	.	.	BRACKET, Harness support, electrical control package					1	GSA
		NAS1101C4-10	.	.	SCREW (AP)					3	
		RD153-1002-0004	.	.	WASHER (AP)					5	
		LD153-0010-0010	.	.	WASHER (AP)					3	
		NAS679C3W	.	.	NUT (AP)					3	
-88		503169	.	.	RECEPTACLE ASSY, Jumper, 14S-5P shell size (J55)					1	NHA
-89		19-501743-12	.	.	BOOT, Armored harness, flexible					2	
-90		19-501743-14	.	.	BOOT, Armored harness, flexible					1	
-91		19-501743-15	.	.	BOOT, Armored harness, flexible					3	
-92		19-501743-16	.	.	BOOT, Armored harness, flexible					1	
-93		19-501743-17	.	.	BOOT, Armored harness, flexible					4	
-94		19-501743-18	.	.	BOOT, Armored harness, flexible					1	
-95		19-501743-19	.	.	BOOT, Armored harness, flexible					3	
-96		19-501743-2	.	.	BOOT, Armored harness, flexible					6	
-97		19-501743-3	.	.	BOOT, Armored harness, flexible					10	
-98		19-501743-4	.	.	BOOT, Armored harness, flexible					3	
-99		19-501743-5	.	.	BOOT, Armored harness, flexible					1	
-100		19-501745-2	.	.	BOOT, Electrical, 90-degree					5	
-101		19-501745-3	.	.	BOOT, Electrical, 90-degree					13	
-102		19-501745-4	.	.	BOOT, Electrical, 90-degree					3	
-103		19-501745-6	.	.	BOOT, Electrical, 90-degree					1	

PARTS LIST CONTINUED ON SUCCEEDING PAGES

(a) For interchangeability status, refer to the Component Interchangeability List.

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FIG. & INDEX NO.	ZONE NO.	PART NUMBER	DESCRIPTION	UNITS PER ASSY.	USABLE ON CODE
			1 2 3 4 5 6 7		
			THE FOLLOWING HARDWARE IS REQUIRED FOR INSTALLATION OF THE WIRING HARNESSES LISTED IN THIS FIGURE		
28-104		RE127-2001-0002	CLAMP	1	
-105		RE127-2001-0004	CLAMP	1	
-106		RE127-2001-0005	CLAMP	1	
-107		RE127-2001-0007	CLAMP	1	
-108		RE127-2001-0008	CLAMP	1	
-109		RE127-2001-0009	CLAMP	2	
-110		RE127-2001-0010	CLAMP	8	
-111		RE127-2001-0012	CLAMP	1	
-112		RE127-2001-0013	CLAMP	3	
-113		RE127-2001-0014	CLAMP	14	
-114		RE127-2001-0015	CLAMP	3	
-115		RE127-2001-0016	CLAMP	1	
-116		RE127-2001-0017	CLAMP	2	
-117		RE127-2001-0018	CLAMP	3	
-118		RE127-2001-0020	CLAMP	1	
-119		RE127-2005-0004	CLAMP	1	
-120		RE127-2005-0005	CLAMP	1	
-121		RE127-2005-0006	CLAMP	1	
-122		RE127-2005-0007	CLAMP	7	
-123		RE127-2005-0008	CLAMP	18	
-124		RE127-2005-0009	CLAMP	17	
-125		RE127-2005-0010	CLAMP	25	
-126		RE127-2005-0011	CLAMP	34	
-127		RE127-2005-0012	CLAMP	13	
-128		RE127-2005-0013	CLAMP	7	
-129		RE127-2005-0014	CLAMP	21	
-130		RE127-2005-0015	CLAMP	3	
-131		RE127-2005-0016	CLAMP	11	
-132		RE127-2005-0017	CLAMP	6	
-133		RE127-2005-0018	CLAMP	10	
-134		RE127-2005-0019	CLAMP	5	
-135		RE127-2005-0020	CLAMP	1	
-136		RE127-2005-0024	CLAMP	1	
-137		RE127-2005-0032	CLAMP	1	
-138		RE127-2006-0030	CLAMP	1	
-139		RE127-2005-0030	CLAMP	1	
-140		502833-13	BRACKET, Harness support	1	
-141		502832	BRACKET, Harness support, throat ring, thrust chamber	2	
-142		502831	BRACKET, Harness support, fuel bleed valve (See figure 29, index 92A, for REQMT)	REF	
-142A		MS9102-02	BRACKET	1	
-142B		NAS1101C3-10	SCREW	39	
-142C		NAS1101C3-12	SCREW	3	
-143		NAS1101C3-14	SCREW	5	
-143A		NAS1101C3-16	SCREW	1	
-144		NAS1101C3-18	SCREW	4	
-144A		NAS1101C3-20	SCREW	2	
-145		NAS1101C3-22	SCREW	5	
-145A		NAS1101C3-28	SCREW	1	
-145B		NAS1101C3-30	SCREW	2	
-145C		NAS1101C3-7	SCREW	8	
-146		NAS1101C04-7	SCREW	6	
-147		NAS1101C04H8	SCREW	2	
-147A		NAS1101C3-8	SCREW	36	
-147B		NAS1101C3-9	SCREW	66	
-147C		NAS43DD3-24	SPACER	1	
-147D		NAS43DD3-32	SPACER	1	
-147E		NAS43HT3-16	SPACER	1	
-147F		NAS43HT3-26	SPACER	1	
-147G		NAS43HT3-32	SPACER	3	
-147H		NAS43HT3-36	SPACER	2	
-148		NAS43HT3-48	SPACER	5	
-148A		NAS43HT3-80	SPACER	3	
-148B		NAS1057W3-075	SPACER	1	
-148C		LD153-0010-0001	WASHER	9	
-148D		LD153-0010-0007	WASHER	5	
-148E		RD153-5005-0003	WASHER	1	
-148F		NAS679C04W	NUT	8	
-148G		NAS679C3W	NUT	180	
-148H		502856	SNUBBER, Clamping block	66	
-148J		502866	SNUBBER, Clamping block	6	
-149		502869	SPACER ASSY, Clamping block	1	

FIG. & INDEX NO	ZONE NO.	PART NUMBER	DESCRIPTION							UNITS PER ASSY	USABLE ON CODE
			1	2	3	4	5	6	7		
28-150		RD111-4011-3417	BOLT (AP)							2	
-151		RD153-5002-0004	WASHER (AP)							2	
		3591-4CNX500	INSERT (MFD by 91767)							2	
-152		502870	SPACER ASSY, Clamping block							1	
-153		RD111-4011-3417	BOLT (AP)							2	
-154		RD153-5002-0004	WASHER (AP)							2	
		3591-4CNX500	INSERT (MFD by 91767)							2	
-155		502867	SPACER ASSY, Clamping block							1	
		MS21209F4-20	INSERT							2	
-156		502865	CLAMPING BLOCK ASSY, Armored harness (Matched set)							2	
		3591-4CNX500	INSERT (MFD by 91767)							6	
-157		RD111-4011-3440	BOLT							4	
-158		RD111-4011-3426	BOLT							2	
-159		RD153-5002-0004	WASHER							12	
-160		502865-3	SEGMENT							2	
-161		502865-5	SEGMENT							2	
-162		502865-7	SEGMENT							2	
-163		LD153-0013-0002	WASHER							7	
-164		MS9102-03	BRACKET							11	
-165		LD153-0010-0009	WASHER							7	
-166		NAS1004-52A	BOLT							6	
-167		NAS679C4W	NUT							7	
-168		RD153-1002-0003	WASHER							33	
-169		NAS1101C3-12	SCREW							8	
-170		LD153-0010-0007	WASHER							68	
-171		MS25083-2BB3	JUMPER ASSY							17	
-172		NAS679C3W	NUT							30	
-173		RE127-2001-0010	CLAMP							1	
-174		NAS1101C3-10	SCREW							22	
-175		RE127-2001-0020	CLAMP							1	
-176		RE127-2001-0016	CLAMP							1	
-177		RE127-2001-0018	CLAMP							3	
-178		RE127-2001-0014	CLAMP							3	
-179		RD111-1009-3441	BOLT							1	
-180		NAS1004-52H	BOLT							1	
-181		RE127-2001-0012	CLAMP							2	
-182		RE127-2001-0015	CLAMP							6	
-183		RE127-2001-0009	CLAMP							2	
-184		502487-21	FRAME ASSY, Support, electrical wire (Welded)							1	ERA
		RE131-5001-0001	BEARING							6	
-185		NAS1101C3H4	SCREW							2	
-186		502294	PIN, Strut attachment							2	
-187		RD111-4011-3442	BOLT							1	
-188		RD111-4008-6406	BOLT							2	
-189		RD153-5002-0004	WASHER							3	
-190		RD153-1002-0004	WASHER							1	
-191		RD114-8005-2004	NUT							1	
-192		502463	CLEVIS, Strut to bypass manifold							2	
-193		502464	STRUT ASSY, Upper wire support frame to bypass manifold (Welded)							1	FZB
-193		502464-21	STRUT ASSY, Upper wire support frame to bypass manifold (Welded)							1	ERA
		RE131-5001-0001	BEARING							1	
-194		502465	STRUT ASSY, Lower wire support frame to bypass manifold (Welded)							1	FZB
-194		502465-21	STRUT ASSY, Lower wire support frame to bypass manifold (Welded)							1	ERA
		RE131-5001-0001	BEARING							1	
-195		502466	STRUT, Inboard, wire support frame to fuel pump forward mount							1	
-196		502471	STRUT ASSY, Wire support frame to fuel pump							1	FZB
-196		502471-11	STRUT ASSY, Wire support frame to fuel pump							1	ERA
		RE131-5001-0001	BEARING							1	
-197		502470	STRUT ASSY, Wire support frame to aft fuel pump mount							1	FZB
-197		502470-11	STRUT ASSY, Wire support frame to aft fuel pump mount							1	ERA
		RE131-5001-0001	BEARING							1	
-198		502290	STRUT ASSY, Outboard, wire support frame to forward fuel pump mount							1	FZB
-198		502290-11	STRUT ASSY, Outboard, wire support frame to forward fuel pump mount							1	ERA
		RE131-5001-0001	BEARING							1	
-199		502295	PIN, Shear, shoulder strut attachment							9	
-200		RD153-1002-0004	WASHER							9	
-201		NAS679C4W	NUT							9	
-202		503159	ARMORED HARNESS ASSY, Flexible, propellant utilization valve to P38 (P38 to control jumper) (See index 14 for REQMT)							REF	GSA
			PARTIAL BREAKDOWN FOLLOWS								
-203		503173-311	PLUG ASSY, Electrical, 20-29S shell size (Altered from NA5-27558T2029S) (P38) (See index 16 for REQMT)							REF	GSA
-204		19-501745-6	BOOT, Electrical, 90-degree (See index 103 for REQMT)							REF	GSA
-205		503266	ARMORED HARNESS ASSY, Flexible, Control jumper							1	QED

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FIG. & INDEX NO.	ZONE NO	PART NUMBER	DESCRIPTION							UNITS PER ASSY.	USABLE ON CODE
			1	2	3	4	5	6	7		
28-206		NA5-27466T114S	.	.	PLUG ASSY, Electrical, LJT, quick disconnect, high					1	QED
					reliability, 11-4S shell size (P36A)						
-207		NA5-27502T2029P	.	.	RECEPTACLE, Electrical, bulkhead mounting high					1	QED
					reliability, 20-29P shell size (J36A)						
-208		19-501743-16	.		BOOT, Armored harness, flexible					1	QED
-209		704562	.		ARMORED HARNESS ASSY, flexible, instrumentation jumper					1	QED
-210		NA5-27466T1198S	.	.	PLUG, Electrical, LJT, quick disconnect high					1	QED
					reliability, 11-6S shell size (P119A)						
-211		NA5-27502T181P	.	.	RECEPTACLE, Electrical, bulkhead mounting high					1	QED
					reliability, 16S-1P shell size (J119A)						
-212		19-501743-16	.		BOOT, Armored harness, flexible					1	QED
-213		704478	.		ARMORED HARNESS ASSY, flexible, position indicators to P101					REF	GSA
					(See index 24 for REQMT)						
-214		503173-171	.	.	PLUG ASSY, Electrical, 16S-1S shell size (Propellant utilization					REF	GSA
					valve position indicator) (Altered from NA5-27556T161S)						
					(P119) (See index 33 for REQMT)						
-215		19-501745-4	.		BOOT, Electrical, 90-degree (See index 102 for REQMT)					REF	GSA
-216		ST5640004RE0002	.		BOOT, Electrical connector					2	QED
-217		RE127-2005-0007	.		CLAMP					2	QED
		NAS1101C3-8	.		SCREW (AP)					1	QED
		LD153-0010-0007	.		WASHER (AP)					1	QED
		NAS679C3W	.		NUT (AP)					1	QED
-218		RE127-2005-0007	.		CLAMP					1	QED
		NAS1101C3-8	.		SCREW (AP)					1	QED
		LD153-0010-0007	.		WASHER (AP)					1	QED
		NAS679C3W	.		NUT (AP)					1	QED
-219		RD191-4002-0001	.		LUG					2	QED
-220		558494	.		BRACKET, Connector mounting, mixture ratio control jumper					1	QED
		NAS1101C04-8	.		SCREW (AP)					4	QED
		LD153-0010-0001	.		WASHER (AP)					8	QED
		NAS679C04W	.		NUT (AP)					4	QED
-221		558495	.		BRACKET, Electrical, connector mounting mixture ratio instrumentation jumper					1	QED
		NAS1101C04-8	.		SCREW (AP)					4	QED
		LD153-0010-0001	.		WASHER (AP)					8	QED
		NAS679C04W	.		NUT (AP)					4	QED
-222		NA5-27480	.		TRANSDUCER, Wirewound, potentiometric type, rotary-motion, 2K ohms, with . . .					REF	QED
					integral single-pole, double-throw switch (See figure						
					17A, index 14, for REQMT) (J119)						
-223		NA5-28203T1	.		VALVE ASSY, 3-way two position, direct solenoid operated					REF	QED
					(See figure 17A, index 9, for REQMT) (J36)						
-224		309415-201	.		VALVE ASSY, Mixture ratio control (See figure 14, index 258A, for REQMT)					REF	QEB
-224		309415-191	.		VALVE ASSY, Mixture ratio control (See figure 14, index 258A, for REQMT)					REF	QEC
-224		309415-211	.		VALVE ASSY, Mixture ratio control (See figure 14, index 258A, for REQMT)					REF	RAB

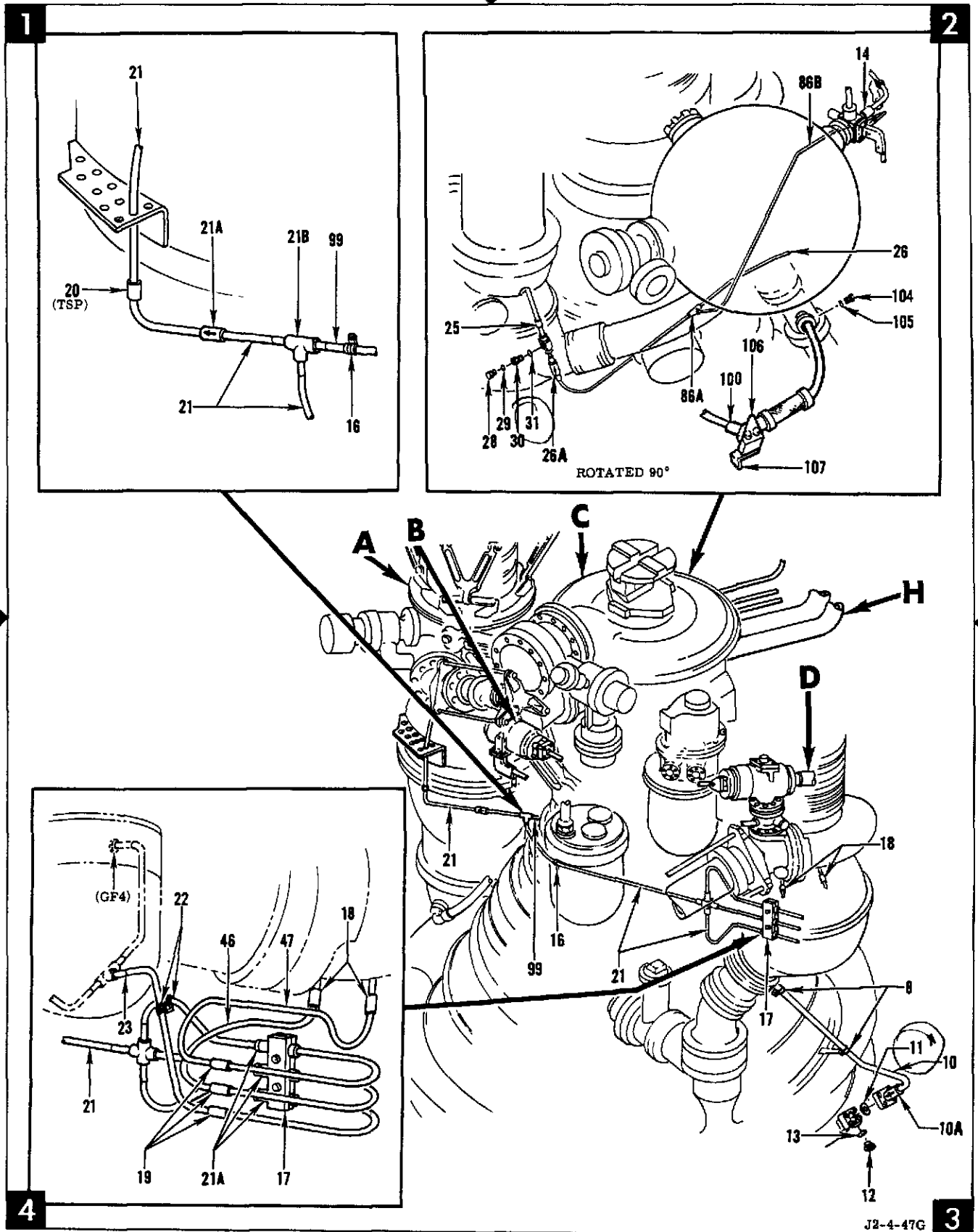


Figure 29. Customer Connect Fluid System Installation (Sheet 1 of 3)

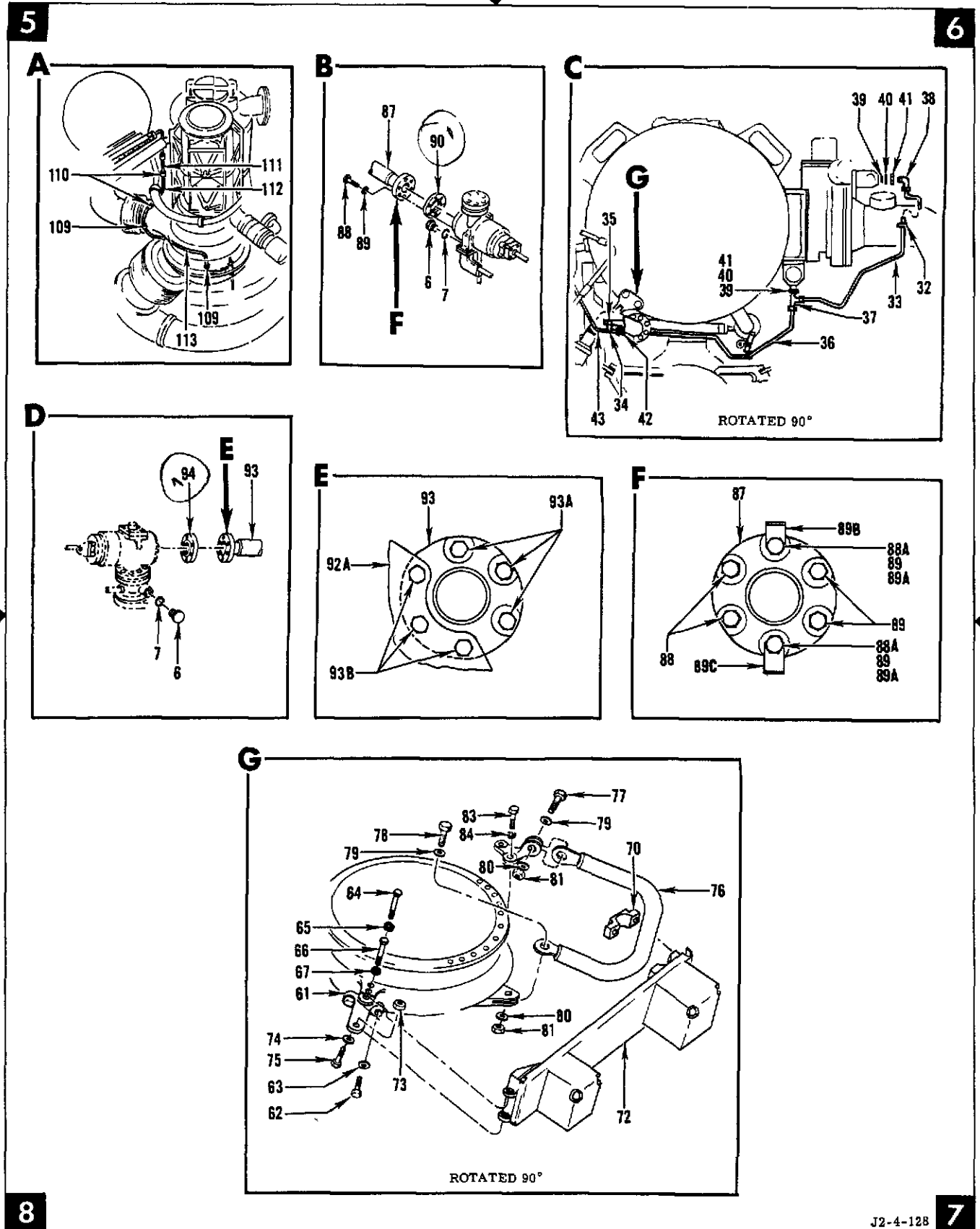


Figure 29. Customer Connect Fluid System Installation (Sheet 2 of 3)

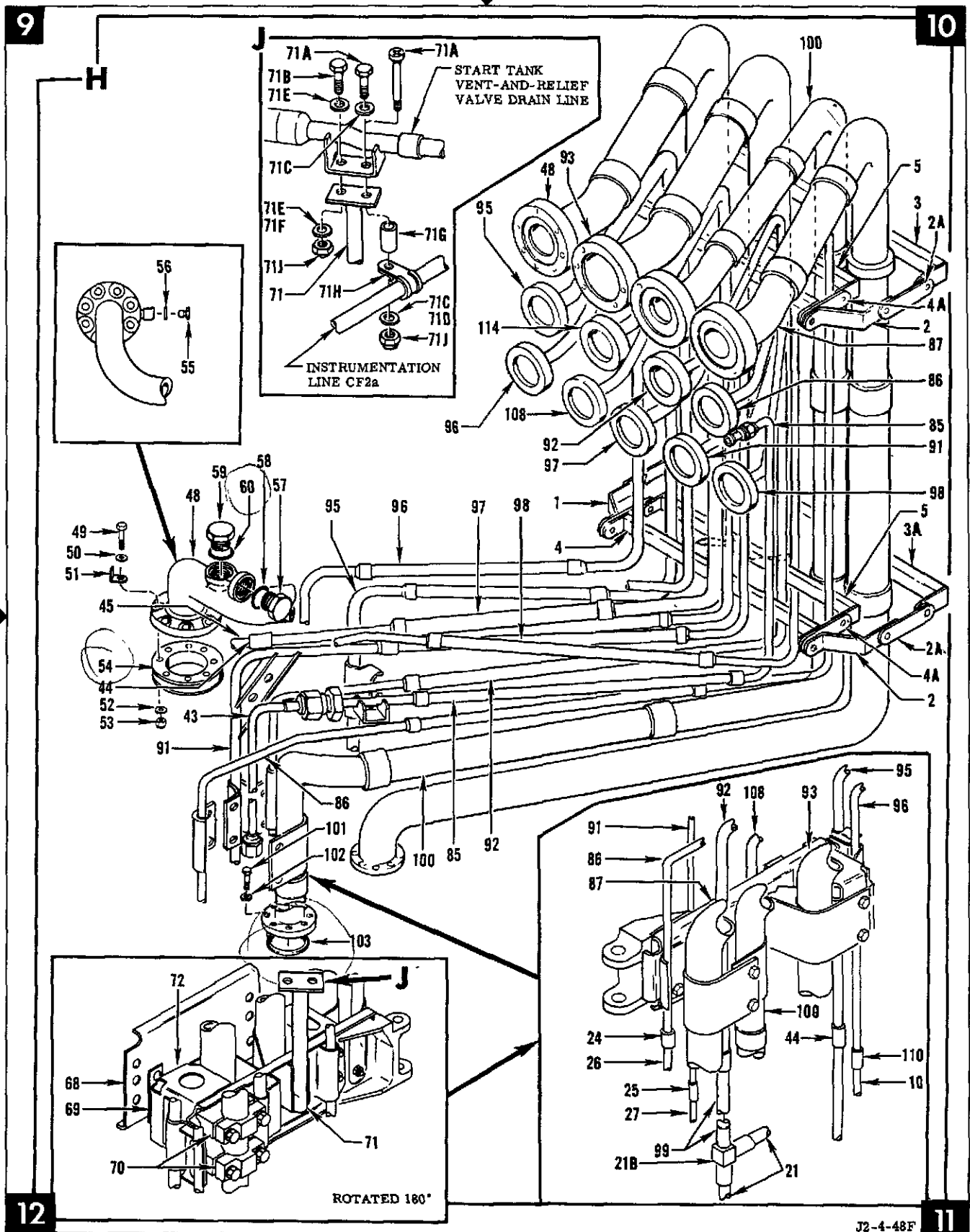


Figure 29. Customer Connect Fluid System Installation (Sheet 3 of 3)

Customer Connect System

FIG. & INDEX NO.	ZONE NO.	PART NUMBER	DESCRIPTION							UNITS PER ASSY	USABLE ON CODE
			1	2	3	4	5	6	7		
			CUSTOMER CONNECT SYSTEM INSTALLATION								
29-		103850	CUSTOMER CONNECT FLUID SYSTEM INSTL (See figure 1)							REF	
- 1		101720	LINK ASSY, Stabilizing (Welded)							2	
- 2		105816	LINK ASSY, Stabilizing (Welded)							2	
		NAS1101C3-17	SCREW (AP)							4	
		RD153-7001-0001	WASHER (AP)							4	
		RD153-7002-0001	WASHER (AP)							4	
		NAS879C3W	NUT (AP)							4	
- 2A		101721-5	LINK, Stabilizing							4	
		NAS1101C3-10	SCREW (AP)							4	
		NAS1101C3-12	SCREW (AP)							4	
		RD153-1002-0003	WASHER (AP)							4	
		RD153-7001-0001	WASHER (AP)							2	
		RD153-7002-0001	WASHER (AP)							2	
		NAS879C3W	NUT (AP)							8	
- 3		101719-31	BAR ASSY, Clamping (Welded)							1	
- 3A		106865	BAR ASSY, Clamping, aft (Welded)							1	
- 4		106834	BAR ASSY, Clamping (Welded)							2	
- 4A		101721-3	LINK, Stabilizing							4	
		NAS1101C3-12	SCREW (AP)							4	
		RD153-7001-0001	WASHER (AP)							2	
		RD153-7002-0001	WASHER (AP)							2	
		NAS879C3W	NUT (AP)							4	
- 5		101719-11	BAR ASSY, Clamping (Welded)							2	
		RE127-2001-0026	CLAMP							2	
		RE127-2001-0024	CLAMP							2	
		RE127-2001-0022	CLAMP							6	
		RE127-2001-0018	CLAMP							2	
		RE127-2001-0006	CLAMP							7	
		RE127-2001-0004	CLAMP							6	
		RE127-2001-0002	CLAMP							8	
		RE127-2005-0004	CLAMP							1	
		RE127-2005-0008	CLAMP							4	
		RE127-2005-0016	CLAMP							2	
		RE127-2005-0032	CLAMP							1	
		NAS1101C3-8	SCREW (AP)							1	
		NAS1101C3-9	SCREW (AP)							1	
		NAS1101C3-14	SCREW (AP)							2	
		NAS43DD3-24	SPACER (AP)							2	
		RD153-1002-0003	WASHER (AP)							1	
		NAS879C3W	NUT (AP)							1	
- 6		RD273-1020-1002	PLUG AND BLEEDER							2	
- 7		RD261-6001-0001	GASKET							2	
- 8		RE127-2005-0008	CLAMP							2	UK
- 8		RE127-2005-0016	CLAMP							2	GXA
		NAS1101C3-8	SCREW (AP)							1	
		LD153-0013-0001	WASHER (AP)							1	
		NAS879C3W	NUT (AP)							1	
- 9		DELETED									
-10		106861	TUBE ASSY, Purge, thrust chamber (Thrust chamber jacket purge line)							1	EWB
			(Welded)								
-10		106886	TUBE ASSY, Insulated, thrust chamber purge (Thrust chamber jacket							1	GXB
			purge line) (Welded)								
-10		106879-11	TUBE ASSY, Purge, thrust chamber (Thrust chamber jacket purge line)							1	JZA
			(Welded)								
		RD111-1010-3422	BOLT (AP)							4	
		LD153-0013-0002	WASHER (AP)							4	
		RD114-8005-2004	NUT (AP)							4	
-10A		556450	VALVE ASSY, Check, fuel jacket, purge (Welded)							1	
			(NHA 106861, and 106879-11)								
		RD172-0014-0018	TAPE (HELIUM)							AR	
		RD172-0007-0001	TAPE (COMPRESSED GAS)							AR	
		RD172-0018-1000	TAPE (1000 PSI)							AR	
		RD172-0014-0039	TAPE (FLOW)							AR	
-11		404673-13	SEAL, Pressure-actuated, cryogenic							1	
-12		RD273-1020-1002	PLUG AND BLEEDER							1	
-13		RD261-6001-0001	GASKET							1	
		RD273-1023-3006	SLEEVE (RD273-1023-7006 or RD273-1029-2002 sleeve may be installed)							1	
-14		106854	TUBE ASSY, Start tank fill							1	
		RD172-0014-0019	TAPE (HYDROGEN)							AR	
		RD172-0007-0001	TAPE (COMPRESSED GAS)							AR	
		RD172-0018-1250	TAPE (1250 PSI)							AR	
		RD172-0014-0039	TAPE (FLOW)							AR	
		106854-3	TUBE, 321 CRES, 1/2 IN. OD by 0.049 gage by 54.00 IN. LG							1	
		RD273-1023-3005	SLEEVE (RD273-1029-2001 sleeve may be installed)							1	

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FIG. & INDEX NO.	ZONE NO.	PART NUMBER	DESCRIPTION							UNITS PER ASSY	USABLE ON CODE
			1	2	3	4	5	6	7		
29-15		DELETED									
-16		RE127-2001-0004	•	CLAMP	.....					2	
		NAS1101C3-9	•	SCREW (AP)	.....					1	
		NAS501-4-4A	•	BOLT (AP)	.....					1	
		LD153-0013-0001	•	WASHER (AP)	.....					1	
		RD153-1002-0004	•	WASHER (AP)	.....					1	
		NAS679C3W	•	NUT (AP)	.....					1	
		NAS679C4W	•	NUT (AP)	.....					1	
-17		105824	•	CLAMP, Half manifold, pump purge	.....					2	
		NAS1101C3-30	•	SCREW (AP)	.....					2	
		RD153-1002-0003	•	WASHER (AP)	.....					4	
		NAS679C3W	•	NUT (AP)	.....					2	
		MS9102-51	•	BRACKET	.....					1	
-18		RD273-1023-0005	•	SLEEVE (RD273-1029-0002 sleeve may be installed)	.....					2	
-19		RD273-1026-XXXX	•	ORIFICE SLEEVE (Orifice size determined by calibration tests)	.....					3	
-20		RD273-1026-XXXX	•	ORIFICE SLEEVE (Orifice size determined by calibration tests)	.....					1	
-21		103838	•	MANIFOLD ASSY, Turbopump purge (Welded) (Installed on engines J-2046, J-2056, J-2062, J-2075 THRU J-2139)	.....					1	
-21		103838-11	•	MANIFOLD ASSY, Turbopump purge (Welded) (Installed on engines J-2140 ... and SUBS)	.....					1	
-21A		557755	•	VALVE ASSY, Check, 1/4 IN. (Oxidizer turbine seal purge check valve) (NHA 103838)	.....					4	
-21A		557755-11 (a)	•	VALVE ASSY, Check, 1/4 IN. (Oxidizer turbine seal purge check valve) (NHA 103838-11)	.....					4	
		RD172-0018-0100	•	TAPE (100 PSI)	.....					AR	
		RD172-0014-0018	•	TAPE (HELIUM)	.....					AR	
		RD172-0007-0001	•	TAPE (COMPRESSED GAS)	.....					AR	
		RD172-0014-0039	•	TAPE (FLOW)	.....					AR	
-21B		103847	•	ADAPTER, Tee	.....					1	
-22		RE127-2001-0002	•	CLAMP	.....					2	
		NAS1101C3-8	•	SCREW (AP)	.....					1	
		NAS679C3W	•	NUT (AP)	.....					1	
-23		106858	•	TUBE ASSY, Gas generator purge from manifold	.....					1	
		RD172-0018-0800	•	TAPE (800 PSI)	.....					AR	
		RD172-0007-0001	•	TAPE (COMPRESSED GAS)	.....					AR	
		RD172-0014-0018	•	TAPE (HELIUM)	.....					AR	
		RD172-0014-0039	•	TAPE (FLOW)	.....					AR	
		106858-3	•	TUBE, 321 CRES, 1/4 IN. OD by 0.035 gage by 18.00 IN. LG	.....					1	
-24		RD273-1023-2005	•	SLEEVE (RD273-1029-1001 sleeve may be installed)	.....					1	
-25		105821	•	SLEEVE, Orificed	.....					1	
-26		106852	•	TUBE ASSY, Seal drain, fuel pump (Fuel turbopump primary seal drain line) (Welded)	.....					1	JT
-26		106852-21	•	TUBE ASSY, Seal drain, fuel pump (Fuel turbopump primary seal drain line) (Welded)	.....					1	MMB
-26		106852-31	•	TUBE ASSY, Seal drain, fuel pump (Fuel turbopump primary seal drain line) (Welded)	.....					1	NHA
-26A		557751	•	VALVE ASSY, Check 1/4 IN. (Fuel turbopump primary seal drain check valve) (NHA 106852)	.....					1	
-26A		557751-11	•	VALVE ASSY, Check 1/4 IN. (Fuel turbopump primary seal drain check valve) (NHA 106852-21 and 106852-31)	.....					1	
		RD172-0014-0019	•	TAPE (HYDROGEN)	.....					AR	
		RD172-0014-0040	•	TAPE (DRAIN)	.....					AR	
		RD172-0018-0030	•	TAPE (30 PSI)	.....					AR	
		RD172-0014-0039	•	TAPE (FLOW)	.....					AR	
-27		RD273-1023-0006	•	SLEEVE (RD273-1029-0003 sleeve may be installed)	.....					1	
		103843	•	TUBE ASSY, Helium tank fill	.....					1	
		RD172-0018-3000	•	TAPE (3000 PSI)	.....					AR	
		RD172-0014-0018	•	TAPE (HELIUM)	.....					AR	
		103843-3	•	TUBE, 321 CRES, 3/8 IN. OD by 0.049 gage by 10.00 IN. LG	.....					1	
-28		RD273-1020-1002	•	PLUG AND BLEEDER	.....					1	
-29		RD261-6001-0001	•	GASKET	.....					1	
-30		RD265-3009-0002	•	PLUG	.....					1	
-31		404659	•	SEAL, Pressure-actuated	.....					1	
-31		408767 (a)	•	SEAL, Pressure-actuated, cryogenic	.....					1	JP JYA
		RE127-2001-0003	•	CLAMP	.....					1	
		RE127-2001-0006	•	CLAMP	.....					1	
		NAS1101C3-8	•	SCREW (AP)	.....					1	
		RD153-1002-0003	•	WASHER (AP)	.....					1	
		NAS679C3W	•	NUT (AP)	.....					1	
-32		RD127-1001-0002	•	CLAMP	.....					2	
		NAS1101C3-16	•	SCREW (AP)	.....					1	
		LD153-0010-0008	•	WASHER (AP)	.....					1	
		NAS679C3W	•	NUT (AP)	.....					1	
-33		106809	•	TUBE ASSY, Calips, pressure switch, checkout (Mainstage OK pressure switch checkout line) (Welded)	.....					1	CRE

(a) For interchangeability status, refer to the Component Interchangeability List.

Customer Connect System

FIG. & INDEX NO.	ZONE NO.	PART NUMBER	DESCRIPTION							UNITS PER ASSY.	USABLE OH CODE
			1	2	3	4	5	6	7		
29-33		106913	TUBE ASSY, Calips, pressure switch, checkout (Mainstage OK pressure switch checkout line) (Welded)							1	GMA
		RD172-0007-0001	TAPE (COMPRESSED GAS)							AR	
		RD172-0014-0018	TAPE (HELIUM)							AR	
		RD172-0018-0700	TAPE (700 PSI)							AR	
-34		RE127-2001-0002	CLAMP							1	
-35		RE127-2001-0010	CLAMP							1	
		NAS1101C3-8	SCREW (AP)							1	
		RD153-1002-0003	WASHER (AP)							1	
		NAS879C3W	NUT (AP)							1	
-36		106908	TUBE ASSY, Calips, pressure switch, checkout (Welded)							1	
		RD172-0014-0018	TAPE (HELIUM)							AR	
		RD172-0018-0700	TAPE (700 PSI)							AR	
		RD172-0007-0001	TAPE (COMPRESSED GAS)							AR	
-37		AN804J4	TEE (Supersedes AN804C4)							1	
-38		AN833-4J	ELBOW (Supersedes AN833-4C)							1	
-39		MS28778-4	PACKING							2	
-40		MS28777-4	RING (Alternate MS9058-04)							2	
-41		RD114-1003-1004	NUT							2	
-42		AN815-4J	UNION (Supersedes AN815-4C)							1	
-43		106835	TUBE ASSY, Calips, pressure switch, checkout (Welded)							1	
		RD172-0014-0018	TAPE (HELIUM)							AR	
		RD172-0018-0700	TAPE (700 PSI)							AR	
		RD172-0007-0001	TAPE (COMPRESSED GAS)							AR	
-44		RD273-1023-3006	SLEEVE (RD273-1023-7006 or RD273-1029-2002 sleeve may be installed)							1	
		557181	SLEEVE, Adapter vent valve							1	
-45		106906	TUBE ASSY, Start tank drain							1	
		RD172-0014-0019	TAPE (HYDROGEN)							AR	
		RD172-0018-1000	TAPE (1000 PSI)							AR	
		106906-3	TUBE, 321 CRES, 1/2 IN. OD by 0.049 gage by 18.00 IN. LG							1	
-46		106859	TUBE ASSY, Seal purge, primary, fuel pump (Fuel turbopump primary seal purge line)							1	
		RD172-0014-0018	TAPE (HELIUM)							AR	
		RD172-0018-0100	TAPE (100 PSI)							AR	
		RD172-0014-0039	TAPE (FLOW)							AR	
		106859-3	TUBE, 321 CRES, 1/4 IN. OD by 0.035 gage by 11.00 IN. LG							1	
-47		106856	TUBE ASSY, Fuel turbine, seal purge							1	
		RD172-0014-0018	TAPE (HELIUM)							AR	
		RD172-0007-0001	TAPE (COMPRESSED GAS)							AR	
		RD172-0018-0100	TAPE (100 PSI)							AR	
		RD172-0014-0039	TAPE (FLOW)							AR	
		106856-3	TUBE, 321 CRES, 1/4 IN. OD by 0.035 gage by 18.00 IN. LG							1	
		RE127-2001-0002	CLAMP							2	
		RE127-2001-0003	CLAMP							1	
		NAS1101C3-10	SCREW (AP)							1	
		NAS1101C3-7	SCREW (AP)							1	
		RD153-1002-0003	WASHER (AP)							1	
		NAS879C3W	NUT (AP)							1	
		106329	BRACKET ASSY, Clamping (Riveted)							1	
-48		NA5-260124	HOSE ASSY, Hydrogen tank pressurization							1	FDB
-48		NA5-260184 (a)	HOSE ASSY, Hydrogen tank pressurization							1	GDM
-48		NA5-260184 (a)	HOSE ASSY, Hydrogen tank pressurization							1	HPA
-49		RD111-1010-3423	BOLT (AP)							8	
-50		LD153-0013-0002	WASHER (AP)							8	
-51		MS9102-51	BRACKET (AP)							1	
-52		LD153-0010-0009	WASHER (AP)							8	
-53		RD114-8005-2004	NUT (AP)							8	
		RD172-0014-0019	TAPE (HYDROGEN)							AR	
		RD172-0002-0001	TAPE (ROCKET FUEL)							AR	
		RD172-0018-0850	TAPE (850 PSI)							AR	
		RD172-0014-0039	TAPE (FLOW)							AR	
-54		404657-27	SEAL, Pressure-actuated							1	JP
-54		410861 (a)	SEAL, Pressure-actuated, cryogenic							1	JYA
-55		RD273-1020-1002	PLUG AND BLEEDER							1	
-56		RD281-8001-0001	GASKET							1	
-57		RD273-1020-1002	PLUG AND BLEEDER (NHA NA5-260124)							1	
-58		RD281-8001-0001	GASKET (NHA NA5-260124)							1	
-59		701853	PLUG, Instrumentation port, unvented (NHA NA5-260124)							1	
-60		404659	SEAL, Pressure-actuated (NHA NA5-260124)							1	JP
-60		408767 (a)	SEAL, Pressure-actuated, cryogenic (NHA NA5-260124)							1	JYA
-61		106489	FITTING, Support							1	
-62		RD111-1009-3516	BOLT (AP)							2	
-63		LD153-0013-0003	WASHER (AP)							2	
-64		RD111-1009-3412	BOLT (AP)							1	
-65		LD153-0013-0002	WASHER (AP)							1	

(a) For interchangeability status, refer to the Component Interchangeability List.

FIG. & INDEX NO.	ZONE NO.	PART NUMBER	DESCRIPTION							UNITS PER ASSY.	USABLE ON CODE
			1	2	3	4	5	6	7		
29-66		RD111-1009-3512	. BOLT (AP)							1	
-87		LD153-0013-0003	. WASHER (AP)							1	
-68		106470	. CHANNEL, Stiffener							1	
		RD111-1010-3413	. BOLT (AP)							4	
		LD153-0013-0002	. WASHER (AP)							4	
-69		106471	. SPACER							1	
-70		103844	. CLAMP, Customer connect bracket							2	
		RD111-1009-3417	. BOLT (AP)							2	
		LD153-0013-0002	. WASHER (AP)							2	
-71		106648	. BRACKET ASSY, Spin tank vent and relief line (Welded)							1	
-71A		NAS501-3-4A	. BOLT (AP)							1	VBS
-71A		NAS501-3-5A	. BOLT (AP)							1	VBT
-71A		NAS1101C3-26	. SCREW (AP)							1	NRC
-71A		NAS1101C3-10	. SCREW (AP)							1	FFD
-71B		NAS501-3-4A	. BOLT (AP)							1	VBQ
-71B		NAS501-3-5A	. BOLT (AP)							1	VBR
-71C		RD153-1002-0003	. WASHER (AP)							1	VBS
-71C		RD153-1002-0003	. WASHER (AP)							2	VBT
-71D		LD153-0010-0007	. WASHER (AP)							1	VBS
-71E		RD153-1002-0003	. WASHER (AP)							1	VBQ
-71E		RD153-1002-0003	. WASHER (AP)							2	VBR
-71F		LD153-0010-0007	. WASHER (AP)							1	VBQ
-71G		NAS43DD3-64	. SPACER (AP)							1	NRC
-71H		RE127-2005-0004	. CLAMP (AP)							1	NRC
-71J		NAS679C3W	. NUT (AP)							2	
-72		106642	. SUPPORT ASSY, Customer connect lines (Welded)							1	
		RD111-1010-3410	. BOLT (AP)							14	
		LD153-0013-0002	. WASHER (AP)							14	
		NAS679C4W	. NUT (AP)							8	
-73		RD114-8005-2006	. NUT							1	
-74		RD153-1002-0006	. WASHER							1	
-75		RD111-1010-3643	. BOLT							1	
-76		106467	. BRACE ASSY, Panel support (Welded) (J-2046 only)							1	
-76		106467-11	. BRACE ASSY, Panel support (Welded)							1	ERA
-77		NAS1006-14A	. BOLT (AP)							1	
-78		NAS1006-19A	. BOLT (AP)							1	
-79		LD153-0013-0004	. WASHER (AP)							2	
-80		RD153-1002-0006	. WASHER (AP)							2	
-81		NAS679C6	. NUT (AP)							2	
-82		106468	. CLEVIS, Brace support							1	
-83		RD111-1009-3622	. BOLT (AP)							2	
-84		RD153-5002-0006	. WASHER (AP)							2	
-85		NA5-260067 (a)	. HOSE ASSY, Calips, pressure switch, checkout							1	
		RE127-2001-0002	. CLAMP							4	
		NAS1101C3-8	. SCREW (AP)							1	
		LD153-0010-0008	. WASHER (AP)							1	
		NAS679C3W	. NUT (AP)							1	
-86		NA5-260140	. HOSE ASSY, Fuel pump drain							1	GEC
-86		404639 (a)	. HOSE ASSY, Drain, fuel pump							1	NHA
		RD172-0014-0019	. TAPE (HYDROGEN)							AR	
		RD172-0014-0040	. TAPE (DRAIN)							AR	
		RD172-0018-0030	. TAPE (30 PSI)							AR	
		RD172-0014-0039	. TAPE (FLOW)							AR	
-86A		703096	. TEE, Instrumentation system (556120 tee may be installed)							1	NHA
		RE127-2001-0002	. CLAMP							2	
		RE127-2001-0018	. CLAMP							2	
		NAS1101C3-10	. SCREW (AP)							2	
-86B		NAS679C3W	. NUT (AP)							2	
		106917	. TUBE ASSY, Start tank vent							1	NHA
		RD172-0007-0001	. TAPE (COMPRESSED GAS)							AR	
		RD172-0014-0039	. TAPE (FLOW)							AR	
		RD172-0014-0019	. TAPE (HYDROGEN)							AR	
		RD172-0018-0030	. TAPE (30 PSI)							AR	
-87		106917-3	. TUBE, 321 CRES, 1/4 IN. OD by 0.035 gage by 30.00 IN. LG							1	
-88		106626 (a)	. LINE ASSY, Oxidizer bleed (Welded)							1	
-88A		RD111-1009-3415	. BOLT (AP)							4	
-89		LD153-0013-0002	. WASHER (AP)							2	
-89A		RD153-1002-0004	. WASHER (AP)							6	
-89B		502833-17	. BRACKET, Harness support							1	
-89C		502833-15	. BRACKET, Harness support							1	
		RD172-0001-0001	. TAPE (ROCKET OXIDIZER)							AR	
		RD172-0014-0027	. TAPE (LIQUID OXYGEN)							AR	
		RD172-0014-0039	. TAPE (FLOW)							AR	
		RD172-0018-0150	. TAPE (150 PSI)							AR	

(a) For interchangeability status, refer to the Component Interchangeability List.

Section II
Customer Connect System

R-3825-4

FIG. & INDEX NO.	ZONE NO.	PART NUMBER	DESCRIPTION							UNITS PER ASSY.	USABLE ON CODE
			1	2	3	4	5	6	7		
28-90 -90		404700-3	SEAL, Pressure-actuated, LOX-service							1	JP
		459760-3 (a)	SEAL, Pressure-actuated, cryogenic							1	JYA
		RE127-2001-0022	CLAMP							2	
		NAS1101C3-8	SCREW (AP)							1	
		NAS1101C3-24	SCREW (AP)							1	
		LD153-0010-0007	WASHER (AP)							1	
		RD153-1002-0003	WASHER (AP)							1	
		NAS43HT3-48	SPACER (AP)							1	
		NAS679C3W	NUT (AP)							1	
		RE127-2005-0018	CLAMP							1	
		502833-13	BRACKET, Harness support							1	
		NAS1101C3-8	SCREW (AP)							1	
		NAS679C3W	NUT (AP)							1	
		106644	BLOCK, Spacer, fuel bleed line							1	
		106628	BRACKET, Spacer, fuel bleed line							1	
		NAS1004-10A	BOLT (AP)							2	
		RD153-1002-0004	WASHER (AP)							2	
		LD153-0013-0002	WASHER (AP)							2	
		NAS679C4W	NUT (AP)							2	
		RE127-2006-0020	CLAMP							1	
		RE127-2006-0030	CLAMP							1	
		NAS1101C3-10	SCREW (AP)							1	
		NAS1101C3-12	SCREW (AP)							1	
		NAS679C3W	NUT (AP)							2	
		106903	SUPPORT, Fuel bleed line							1	
		106902	CLAMP, Fuel bleed line							1	
		RD111-1009-1409	BOLT (AP)							2	
		RD111-1009-3421	BOLT (AP)							2	
		LD153-0013-0002	WASHER (AP)							4	
	-91	NA5-260058	HOSE ASSY, Helium tank fill							1	
		RD172-0014-0018	TAPE (HELIUM)							AR	
		RD172-0007-0001	TAPE (COMPRESSED GAS)							AR	
		RD172-0018-3000	TAPE (3000 PSI)							AR	
		RD172-0014-0039	TAPE (FLOW)							AR	
		106331	SLEEVE, Welded tube joint							1	
	-92	NA5-26944	HOSE ASSY, Turbopump purge							1	
		RD172-0014-0018	TAPE (HELIUM)							AR	
		RD172-0007-0001	TAPE (COMPRESSED GAS)							AR	
		RD172-0018-0100	TAPE (100 PSI)							AR	
		RD172-0014-0039	TAPE (FLOW)							AR	
		RD273-1023-2006	SLEEVE (RD273-1029-1002 sleeve may be installed)							1	
	-92A	502831	BRACKET, Harness support, fuel bleed valve							1	
	-93	106627	LINE ASSY, Fuel bleed (Welded)							1	
	-93A	RD111-1009-3415	BOLT (AP)							3	
	-93B	RD111-1009-3418	BOLT (AP)							3	
		LD153-0013-0002	WASHER (AP)							6	
		RD153-1002-0004	WASHER (AP)							6	
		RD172-0002-0001	TAPE (ROCKET FUEL)							AR	
		RD172-0014-0026	TAPE (LIQUID HYDROGEN)							AR	
		RD172-0018-0150	TAPE (150 PSI)							AR	
		RD172-0014-0039	TAPE (FLOW)							AR	
	-94	404700-3	SEAL, Pressure-actuated, LOX-service							1	JP
	-94	459760-3 (a)	SEAL, Pressure-actuated, cryogenic							1	JYA
	-95	NA5-260139	HOSE ASSY, Start tank fill							1	
		RD172-0014-0019	TAPE (HYDROGEN)							AR	
		RD172-0007-0001	TAPE (COMPRESSED GAS)							AR	
		RD172-0018-1230	TAPE (1250 PSI)							AR	
		RD172-0014-0039	TAPE (FLOW)							AR	
	-96	NA5-260056	HOSE ASSY, Thrust chamber jacket purge							1	BVE
	-96	NA5-260125 (a)	HOSE ASSY, Thrust chamber jacket purge							1	GXA
		RD172-0014-0018	TAPE (HELIUM)							AR	
		RD172-0007-0001	TAPE (COMPRESSED GAS)							AR	
		RD172-0018-1000	TAPE (1000 PSI)							AR	
		RD172-0014-0039	TAPE (FLOW)							AR	
	-97	NA5-260147 (a)	HOSE ASSY, Start tank vent and relief valve drain (May replace NA5-260059 for spares)							1	
		RD172-0014-0019	TAPE (HYDROGEN)							AR	
		RD172-0007-0001	TAPE (COMPRESSED GAS)							AR	
		RD172-0018-1000	TAPE (1000 PSI)							AR	
		RD172-0014-0039	TAPE (FLOW)							AR	
	-98	NA5-260057	HOSE ASSY, Start tank vent valve control							1	
		RD172-0014-0018	TAPE (HELIUM)							AR	
		RD172-0007-0001	TAPE (COMPRESSED GAS)							AR	
		RD172-0018-0500	TAPE (500 PSI)							AR	
		RD172-0014-0039	TAPE (FLOW)							AR	

(a) For interchangeability status, refer to the Component Interchangeability List.

FIG. & INDEX NO.	ZONE NO.	PART NUMBER	DESCRIPTION							UNITS PER ASSY.	USABLE OH CODE
			1	2	3	4	5	6	7		
29-99		106344	TUBE ASSY, Purge, turbopump							1	
		RD172-0014-0039	TAPE (FLOW)							AR	
		RD172-0018-0100	TAPE (100 PSI)							AR	
		RD172-0007-0001	TAPE (COMPRESSED GAS)							AR	
		RD172-0014-0018	TAPE (HELIUM)							AR	
		106344-3	TUBE, 321 CRES, 3/8 IN. OD by 0.035 gage by 36.00 IN. LG							1	
-100		106645-11	HOSE ASSY, Oxidizer tank pressurization (Welded) (May replace 106645 for spares)							1	
-101		RD111-1009-3420	BOLT (AP)							8	
-102		RD153-5001-0004	WASHER (AP)							8	
		RD172-0001-0001	TAPE (ROCKET OXIDIZER)							AR	
		RD172-0007-0001	TAPE (COMPRESSED GAS)							AR	
		RD172-0018-1180	TAPE (1160 PSI)							AR	
		RD172-0014-0039	TAPE (FLOW)							AR	
-103		404673-33	SEAL, Pressure-actuated, cryogenic							1	
-104		RD273-1020-1002	PLUG AND BLEEDER							1	
-105		RD261-8001-0001	GASKET							1	
-106		407596	BRACKET, Outlet line, heat exchanger							1	
		LD153-0010-0008	WASHER (AP)							2	
		LD153-0010-0010	WASHER (AP)							2	
		NAS879C3W	NUT (AP)							2	
-107		MS9103-14	BRACKET							1	
		RD111-1010-3431	BOLT (AP)							1	
		LD153-0013-0002	WASHER (AP)							1	
		RD114-8005-2004	NUT (AP)							1	
-108		NA5-260061 (a)	HOSE ASSY, Oxidizer turbopump seal cavity drain							1	NLA
		RD111-1010-3410	BOLT (AP)							2	
		RD111-1010-3411	BOLT (AP)							2	
		LD153-0013-0002	WASHER (AP)							2	
		NAS879C4W	NUT (AP)							4	
		RD172-0014-0040	TAPE (DRAIN)							AR	
		RD172-0014-0027	TAPE (LIQUID OXYGEN)							AR	
		RD172-0018-0025	TAPE (25 PSI)							AR	
-109		RE127-2001-0006	CLAMP							2	NLA
		NAS1101C3-8	SCREW (AP)							1	
		NAS879C3W	NUT (AP)							1	
-110		RD273-1023-3005	SLEEVE (RD273-1029-2001 sleeve may be installed)							2	NLA
-111		411529	TUBE ASSY, Drain line, oxidizer pump							1	NLA
		RD172-0014-0040	TAPE (DRAIN)							AR	
		411529-3	TUBE, 321 CRES, 1/2 IN. OD by 0.035 gage by 4.00 IN. LG							1	
-112		409811	TUBE ASSY, Drain line, oxidizer pump							1	NLA
		RD172-0014-0040	TAPE (DRAIN)							AR	
		RD172-0014-0027	TAPE (LIQUID OXYGEN)							AR	
		RD172-0018-0025	TAPE (25 PSI)							AR	
		409811-3	TUBE, 321 CRES, 1/2 IN. OD by 0.035 gage by 8.00 IN. LG							1	
-113		409812	TUBE ASSY, Drain line, oxidizer pump							1	NLA
		RD172-0014-0040	TAPE (DRAIN)							AR	
		RD172-0014-0027	TAPE (LIQUID OXYGEN)							AR	
		RD172-0018-0025	TAPE (25 PSI)							AR	
		409812-3	TUBE, 321 CRES, 1/2 IN. OD by 0.035 gage by 8.00 IN. LG							1	
-114		105802	LINE ASSY, Helium heat exchanger inlet (Welded) (See figure 14, index 370, for REQMT)							REF	
-114		105802-11	LINE ASSY, Helium heat exchanger inlet (Welded) (See figure 14, index 370, for REQMT)							REF	

(a) For interchangeability status, refer to the Component Interchangeability List.

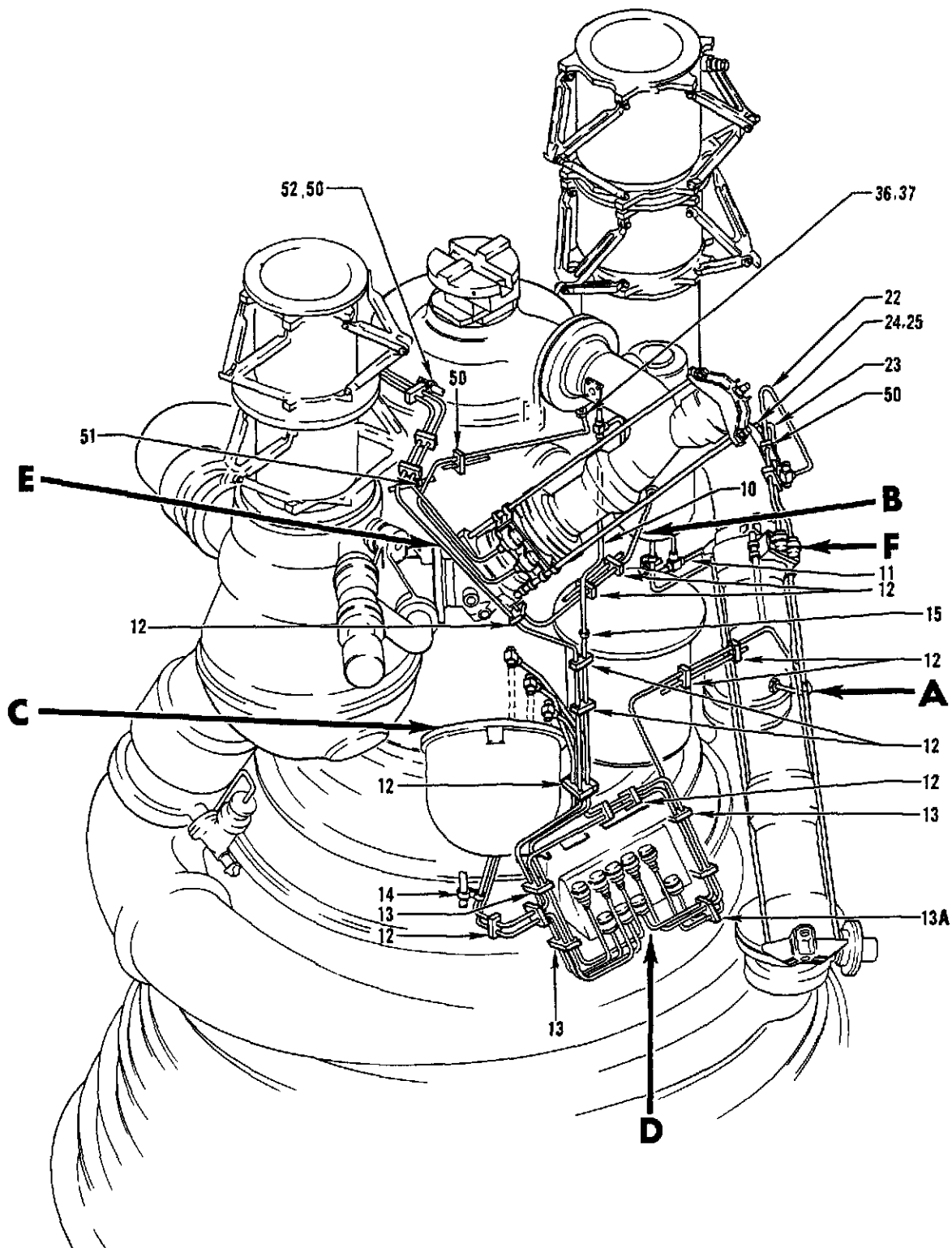


Figure 30. Static Vehicle Test Instrumentation Installation (Sheet 1 of 3)

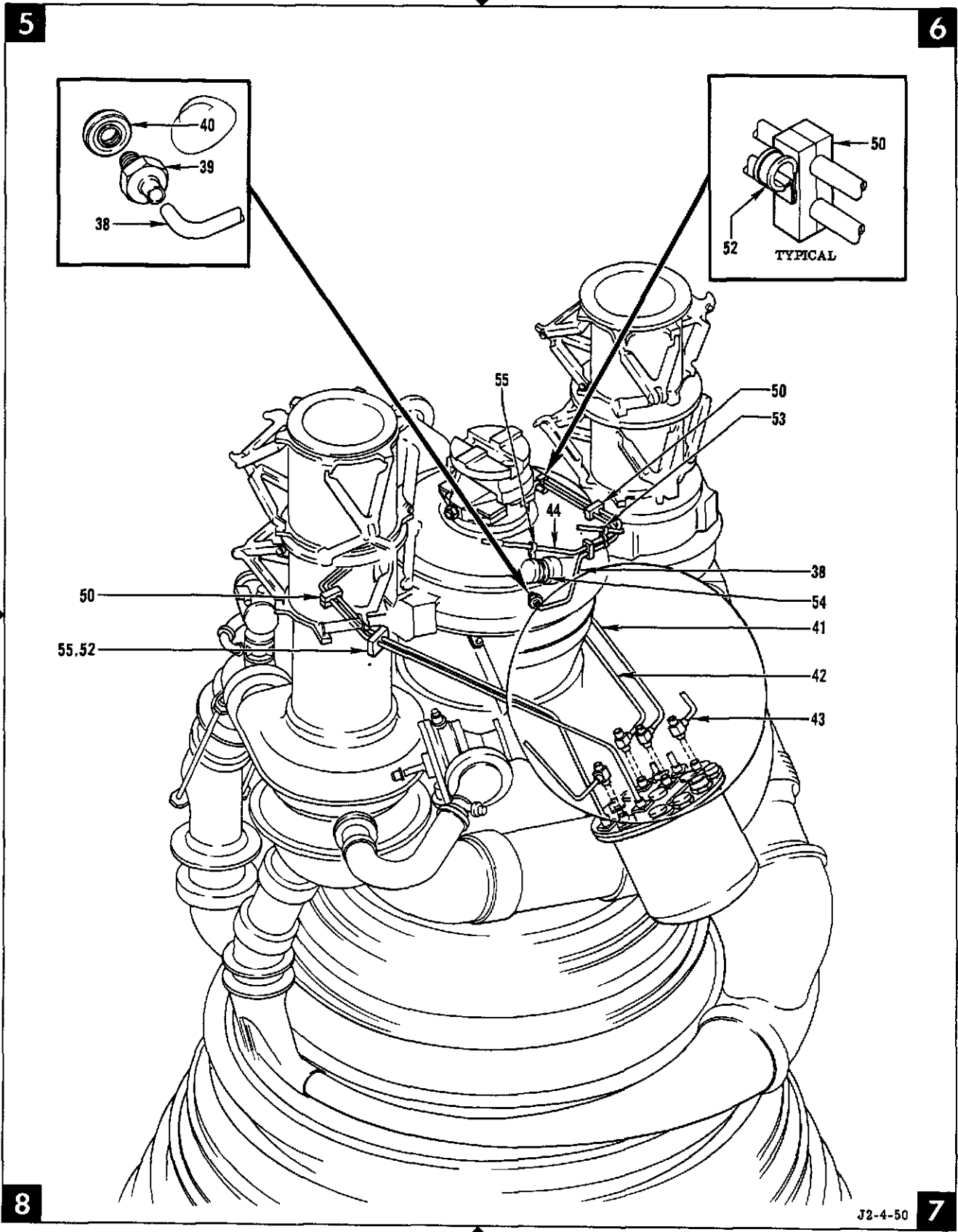


Figure 30. Static Vehicle Test Instrumentation Installation (Sheet 2 of 3)

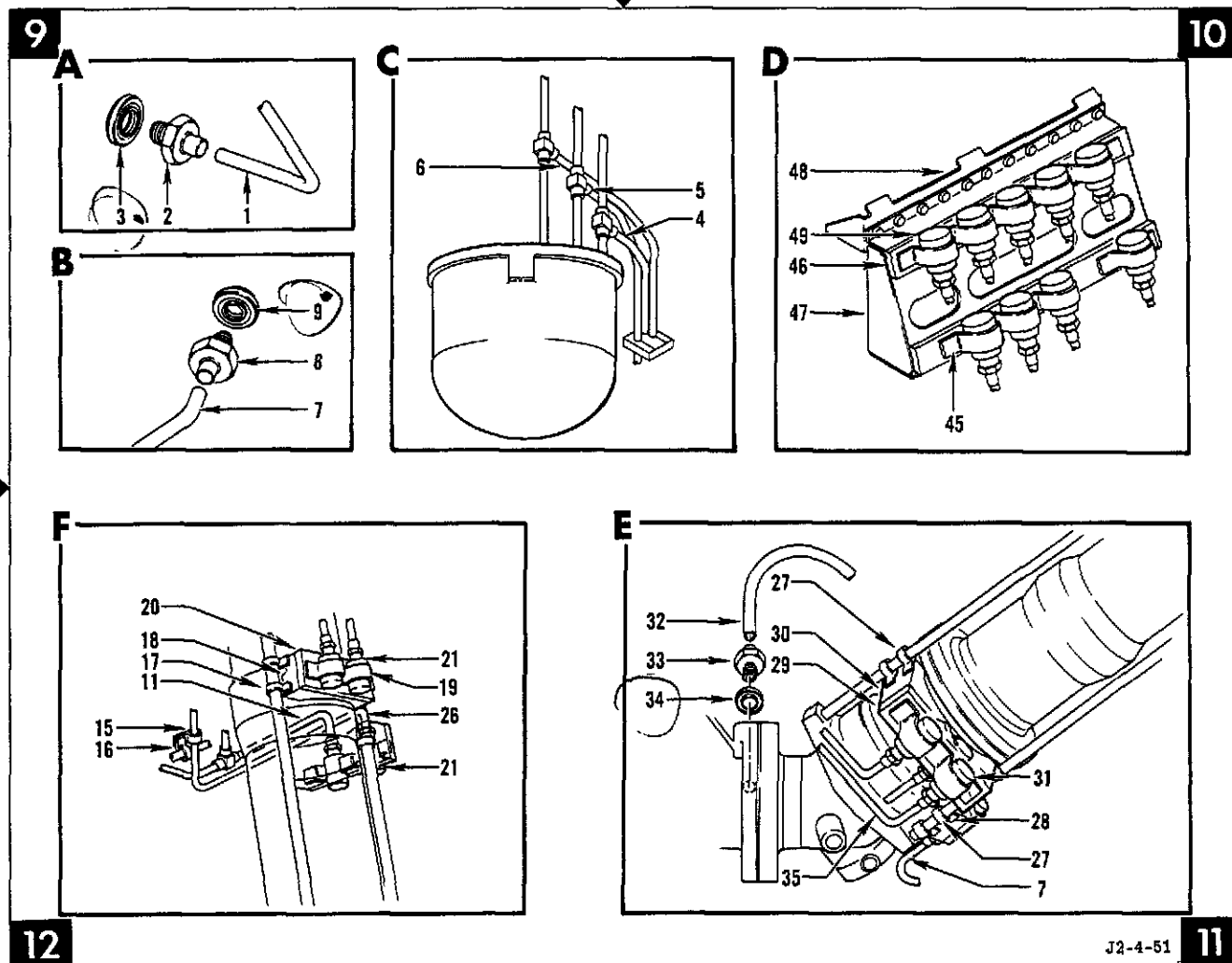


Figure 30. Static Vehicle Test Instrumentation Installation (Sheet 3 of 3)

FIG & INDEX NO	ZONE NO.	PART NUMBER	DESCRIPTION							UNITS PER ASSY.	USABLE ON CODE
			1	2	3	4	5	6	7		
30-		702500 No Number	INSTRUMENTATION STATIC VEHICLE TEST INSTL (See figure 1)							REF	FFB
			. INSTRUMENTATION, Removal of (Instrumentation, applicable to engines . . . that are assigned to flight vehicle)							REF	
- 1	9	703556	. TUBE ASSY, Stage instrumentation, TG8 (Welded)							1	JP JYA NCB NCA
		RD172-0014-0006	. TAPE (COMBUSTION GAS)							AR	
		RD172-0018-0100	. TAPE (100 PSI)							AR	
- 2	9	702547	. ADAPTER, Flight instrumentation, boss to tube							1	
- 3	9	406348	. SEAL, Pressure-actuated, hot-gas							1	
- 3	9	408799 (a)	. SEAL, Pressure-actuated, hot-gas							1	
- 4	10	703680	. TUBE ASSY, Stage instrumentation, NN1 (Welded)							1	
- 4	10	703680-11	. TUBE ASSY, Stage instrumentation, NN1 (Welded)							1	
		RD172-0012-0001	. TAPE (PNEUMATIC)							AR	
		RD172-0014-0018	. TAPE (HELIUM)							AR	
		RD172-0018-3000	. TAPE (3000 PSI)							AR	
- 5	10	703361	. TUBE ASSY, Stage instrumentation, TF1 (Welded)							1	NCB NCA
- 5	10	703681-11	. TUBE ASSY, Stage instrumentation, TF1 (Welded)							1	
		RD172-0002-0001	. TAPE (ROCKET FUEL)							AR	
		RD172-0014-0019	. TAPE (HYDROGEN)							AR	
		RD172-0018-1250	. TAPE (1250 PSI)							AR	
(a) For interchangeability status, refer to the Component Interchangeability List.											

Flight Instrumentation System

FIG. & INDEX NO	ZONE NO.	PART NUMBER	DESCRIPTION							UNITS PER ASSY	USABLE ON CODE
			1	2	3	4	5	6	7		
30- 6	9	703659	.	.	.	.	.	.	.	1	
		RD172-0014-0006	.	.	.	.	.	.	.	AR	
		RD172-0018-0700	.	.	.	.	.	.	.	AR	
- 7	9, 11	703673	.	.	.	.	.	.	.	1	CRL
		RD172-0014-0006	.	.	.	.	.	.	.	AR	
		RD172-0018-0700	.	.	.	.	.	.	.	AR	
- 7	9, 11	704469	.	.	.	.	.	.	.	1	JWA
		RD172-0014-0006	.	.	.	.	.	.	.	AR	
		RD172-0018-0650	.	.	.	.	.	.	.	AR	
- 8	9	704341	.	.	.	.	.	.	.	1	
- 9	9	406346	.	.	.	.	.	.	.	1	JP
- 9	9	408799	.	.	.	.	.	.	.	1	JYA
-10	2	703662	.	.	.	.	.	.	.	1	
		RD172-0012-0001	.	.	.	.	.	.	.	AR	
		RD172-0014-0018	.	.	.	.	.	.	.	AR	
		RD172-0018-0400	.	.	.	.	.	.	.	AR	
-11	2, 12	703669	.	.	.	.	.	.	.	1	
		RD172-0002-0001	.	.	.	.	.	.	.	AR	
		RD172-0014-0026	.	.	.	.	.	.	.	AR	
		RD172-0018-0800	.	.	.	.	.	.	.	AR	
THE FOLLOWING HARDWARE IS REQUIRED FOR THE INSTALLATION OF THE TUBE ASSEMBLIES LISTED ABOVE											
-12	2, 3, 4	RD127-1001-0002	.	.	.	.	.	.	.	40	
-13	3, 4	RD127-1001-0003	.	.	.	.	.	.	.	20	
-13A	3	RD127-1001-0003	.	.	.	.	.	.	.	2	
-14	4	MS21919WH8	.	.	.	.	.	.	.	1	
		MS9102-51	.	.	.	.	.	.	.	1	
-15	12	RE127-2005-0004	.	.	.	.	.	.	.	5	
-16	12	RE127-2005-0006	.	.	.	.	.	.	.	2	
		RE127-2005-0010	.	.	.	.	.	.	.	1	
		RE127-2005-0016	.	.	.	.	.	.	.	2	
		AN520C10R8	.	.	.	.	.	.	.	2	
		AN520C10R10	.	.	.	.	.	.	.	2	
		AN520C10R14	.	.	.	.	.	.	.	4	
		AN520C10R16	.	.	.	.	.	.	.	6	
		AN520C10R26	.	.	.	.	.	.	.	3	
		AN520C10R40	.	.	.	.	.	.	.	1	
		NAS1101C3-26	.	.	.	.	.	.	.	6	
		NAS1101C3-16	.	.	.	.	.	.	.	15	
		NAS1101C3-38	.	.	.	.	.	.	.	8	
		NAS1101C3-8	.	.	.	.	.	.	.	1	
		NAS1101C3-10	.	.	.	.	.	.	.	3	
		NAS43DD1-40	.	.	.	.	.	.	.	12	
		NAS43DD3-48	.	.	.	.	.	.	.	8	
		LD153-0013-0001	.	.	.	.	.	.	.	28	
		LD153-0010-0008	.	.	.	.	.	.	.	29	
		RD153-1002-0003	.	.	.	.	.	.	.	16	
		NAS679C3W	.	.	.	.	.	.	.	29	
-17	12	RE127-2004-0005	.	.	.	.	.	.	.	8	
-18	12	704343	.	.	.	.	.	.	.	2	
		NAS1101C3-9	.	.	.	.	.	.	.	8	
		RD153-1002-0003	.	.	.	.	.	.	.	8	
		NAS679C3W	.	.	.	.	.	.	.	8	
-19	12	703958-5	.	.	.	.	.	.	.	2	
-20	12	703959-5	.	.	.	.	.	.	.	2	
		NAS1004-5A	.	.	.	.	.	.	.	6	
		LD153-0013-0002	.	.	.	.	.	.	.	6	
-21	12	704345	.	.	.	.	.	.	.	4	
-22	2	703665	.	.	.	.	.	.	.	1	
		RD172-0002-0001	.	.	.	.	.	.	.	AR	
		RD172-0014-0026	.	.	.	.	.	.	.	AR	
		RD172-0018-0450	.	.	.	.	.	.	.	AR	
-23	2	703670	.	.	.	.	.	.	.	1	
		RD172-0002-0001	.	.	.	.	.	.	.	AR	
		RD172-0014-0026	.	.	.	.	.	.	.	AR	
		RD172-0018-1200	.	.	.	.	.	.	.	AR	
-24	2	702547	.	.	.	.	.	.	.	1	
-25	2	404659	.	.	.	.	.	.	.	1	JP
-25	2	408787	.	.	.	.	.	.	.	1	JYA
-26	12	703663	.	.	.	.	.	.	.	1	
		RD172-0001-0001	.	.	.	.	.	.	.	AR	
		RD172-0014-0027	.	.	.	.	.	.	.	AR	
		RD172-0018-0800	.	.	.	.	.	.	.	AR	
(a) For interchangeability status, refer to the Component Interchangeability List.											

Flight Instrumentation System

FIG. & INDEX NO	ZONE NO	PART NUMBER	DESCRIPTION							UNITS PER ASSY.	USABLE ON CODE
			1	2	3	4	5	6	7		
30-27	11	RE127-2004-0005	CLAMP							8	
-28	11	704343	BRACKET ASSY, Transducer mount, stage instrumentation (Welded)							2	
		NAS1101C3-9	SCREW (AP)							8	
		RD153-1002-0003	WASHER (AP)							8	
		NAS679C3W	NUT (AP)							2	
-29	11	703958-5	CLAMP, Transducer, stage instrumentation							2	
-30	11	703959-5	SPACER, Transducer, stage instrumentation							2	
		NAS1004-5A	BOLT (AP)							6	
		LD153-0013-0002	WASHER (AP)							6	
-31	11	704345	DUMMY, Pressure transducer, stage instrumentation							4	
-32	11	703656	TUBE ASSY, Stage instrumentation, PO2 (Welded)							1	CRL
		RD172-0001-0001	TAPE (ROCKET OXIDIZER)							AR	
		RD172-0014-0027	TAPE (LIQUID OXYGEN)							AR	
		RD172-0018-1250	TAPE (1250 PSI)							AR	
-32	11	704471	TUBE ASSY, Stage instrumentation, PO3 (Welded)							1	JWA
		RD172-0001-0001	TAPE (ROCKET OXIDIZER)							AR	
		RD172-0014-0027	TAPE (LIQUID OXYGEN)							AR	
		RD172-0018-1250	TAPE (1250 PSI)							AR	
-33	11	702547	ADAPTER, Flight instrumentation, boss to tube							1	
-34	11	404659	SEAL, Pressure-actuated							1	
-34	11	408767	SEAL, Pressure-actuated, cryogenic							1	JYA
-35	11	703658	TUBE ASSY, Stage instrumentation, GG1A (Welded)							1	
		RD172-0014-0006	TAPE (COMBUSTION GAS)							AR	
		RD172-0018-0700	TAPE (700 PSI)							AR	
-36	2	701855	NIPPLE, Flared, tube to special boss							1	
-37	2	404659	SEAL, Pressure-actuated							1	JP
-37	2	408767	SEAL, Pressure-actuated, cryogenic							1	JYA
-38	5,6	703655	TUBE ASSY, Stage instrumentation, CF2A (Welded)							1	CRM
-38	5,6	703655-11	TUBE ASSY, Stage instrumentation, CF2A (Welded)							1	PHC
		RD172-0002-0001	TAPE (ROCKET FUEL)							AR	
		RD172-0014-0019	TAPE (HYDROGEN)							AR	
		RD172-0018-0800	TAPE (800 PSI)							AR	
-38	5,6	704470	TUBE ASSY, Stage instrumentation, CF2 (Welded)							1	JWA
		RD172-0002-0001	TAPE (ROCKET FUEL)							AR	
		RD172-0014-0018	TAPE (HYDROGEN)							AR	
		RD172-0018-1000	TAPE (1000 PSI)							AR	
-39	5	702547	ADAPTER, Flight instrumentation, boss to tube							1	
-40	5	404659	SEAL, Pressure-actuated							1	JP
-40	5	408767	SEAL, Pressure-actuated, cryogenic							1	JYA
-41	7	703666	TUBE ASSY, Stage instrumentation, PO7 (Welded)							1	CRN
		RD172-0001-0001	TAPE (ROCKET OXIDIZER)							AR	
		RD172-0014-0027	TAPE (LIQUID OXYGEN)							AR	
		RD172-0018-0150	TAPE (150 PSI)							AR	
-42	7	703664	TUBE ASSY, Stage instrumentation, TG4 (Welded)							1	
		RD172-0014-0006	TAPE (COMBUSTION GAS)							AR	
		RD172-0018-0050	TAPE (50 PSI)							AR	
-43	7	703667	TUBE ASSY, Stage instrumentation, PO6 (Welded)							1	
		RD172-0001-0001	TAPE (ROCKET OXIDIZER)							AR	
		RD172-0014-0027	TAPE (LIQUID OXYGEN)							AR	
		RD172-0018-0025	TAPE (25 PSI)							AR	
-44	6	703672	TUBE ASSY, Stage instrumentation, IG1 (Welded)							1	CRJ
		RD172-0014-0006	TAPE (COMBUSTION GAS)							AR	
		RD172-0018-0800	TAPE (800 PSI)							AR	
-45	10	704345	CLAMP, Transducer, stage instrumentation							2	
		NAS1004-6A	BOLT (AP)							12	
		LD153-0013-0002	WASHER (AP)							12	
-46	10	703959-3	SPACER, Transducer, stage instrumentation							2	
-47	10	703960	PANEL ASSY, Transducer mounting, stage instrumentation (Welded)							1	
		LD153-0010-0009	WASHER (AP)							11	
		LD153-0010-0014	WASHER (AP)							11	
		NAS679C4W	NUT (AP)							11	
-48	10	704344	SUPPORT, Stage instrumentation							1	
		NAS1004-3A	BOLT (AP)							11	
		LD153-0010-0009	WASHER (AP)							11	
		LD153-0010-0014	WASHER (AP)							11	
		LD153-0013-0002	WASHER (AP)							11	
		NAS679C4W	NUT (AP)							11	
-49	10	704345	DUMMY, Pressure transducer, stage instrumentation							9	VBJ
-49	10	704345	DUMMY, Pressure transducer, stage instrumentation							7	VBK
-49	10	704345	DUMMY, Pressure transducer, stage instrumentation							6	VBL
THE FOLLOWING HARDWARE IS REQUIRED FOR THE INSTALLATION OF THE TUBE ASSEMBLIES LISTED ABOVE:											
-50	1,2,5,6	RD127-1001-0002	CLAMP							22	
-51	1	RE127-2001-0022	CLAMP							1	

(a) For interchangeability status, refer to the Component Interchangeability List.

Flight Instrumentation System

FIG. & INDEX NO	ZONE NO	PART NUMBER	DESCRIPTION							UNITS PER ASSY	USABLE ON CODE
			1	2	3	4	5	6	7		
30-52	1,6,8	MS21919WH6	.	CLAMP	.	.	.	.	.	2	
-53	1,6	MS21919WH10	.	CLAMP	.	.	.	.	.	1	
-54	6	MS21919WH34	.	CLAMP	.	.	.	.	.	1	
-55	6,8	MS21919WH4	.	CLAMP	.	.	.	.	.	3	
		MS9101-05	.	BRACKET	.	.	.	.	.	1	
		RE127-2005-0004	.	CLAMP	.	.	.	.	.	4	
		RE127-2005-0010	.	CLAMP	.	.	.	.	.	1	
		RE127-2005-0016	.	CLAMP	.	.	.	.	.	2	
		AN520C10R8	.	SCREW	.	.	.	.	.	2	
		AN520C10R10	.	SCREW	.	.	.	.	.	2	
		AN520C10R14	.	SCREW	.	.	.	.	.	4	
		AN520C10R16	.	SCREW	.	.	.	.	.	6	
		AN520C10R26	.	SCREW	.	.	.	.	.	3	
		AN520C10R40	.	SCREW	.	.	.	.	.	1	
		NAS1101C3-16	.	SCREW	.	.	.	.	.	7	
		NAS1101C3-32	.	SCREW	.	.	.	.	.	1	
		NAS1101C3-10	.	SCREW	.	.	.	.	.	1	
		NAS1101C3-30	.	SCREW	.	.	.	.	.	1	
		NAS1101C3-26	.	SCREW	.	.	.	.	.	2	
		NAS1101C3-8	.	SCREW	.	.	.	.	.	1	
		NAS43DD3-24	.	SPACER	.	.	.	.	.	1	
		NAS43DD3-32	.	SPACER	.	.	.	.	.	1	
		NAS43DD3-48	.	SPACER	.	.	.	.	.	1	
		NAS43DD3-64	.	SPACER	.	.	.	.	.	1	
		NAS43DD1-40	.	SPACER	.	.	.	.	.	2	
		LD153-0010-0007	.	WASHER	.	.	.	.	.	1	
		LD153-0010-0008	.	WASHER	.	.	.	.	.	17	
		LD153-0013-0001	.	WASHER	.	.	.	.	.	14	
		NAS679C3W	.	NUT	.	.	.	.	.	14	

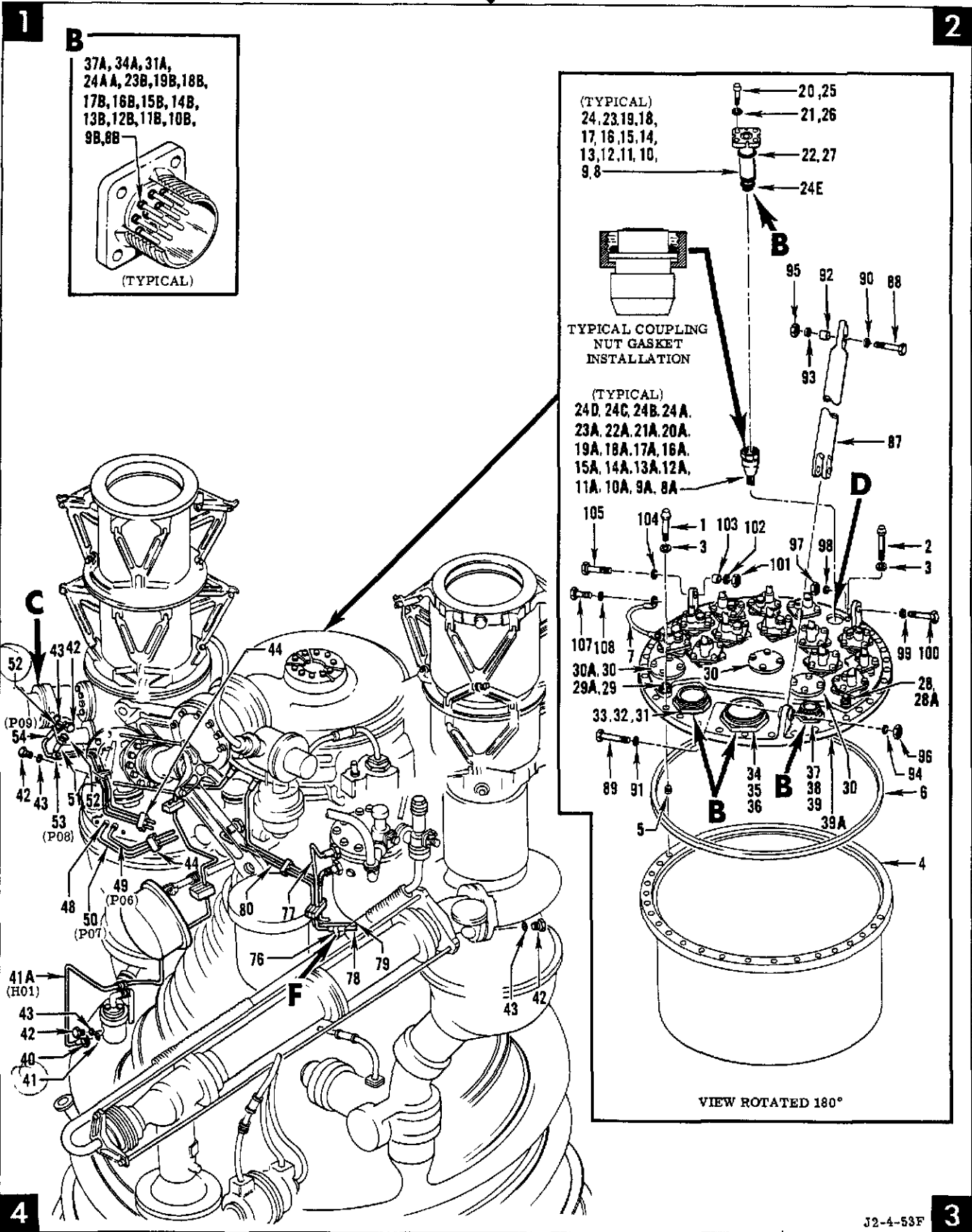


Figure 31. Flight Instrumentation and Auxiliary Package Assembly (Sheet 1 of 3)

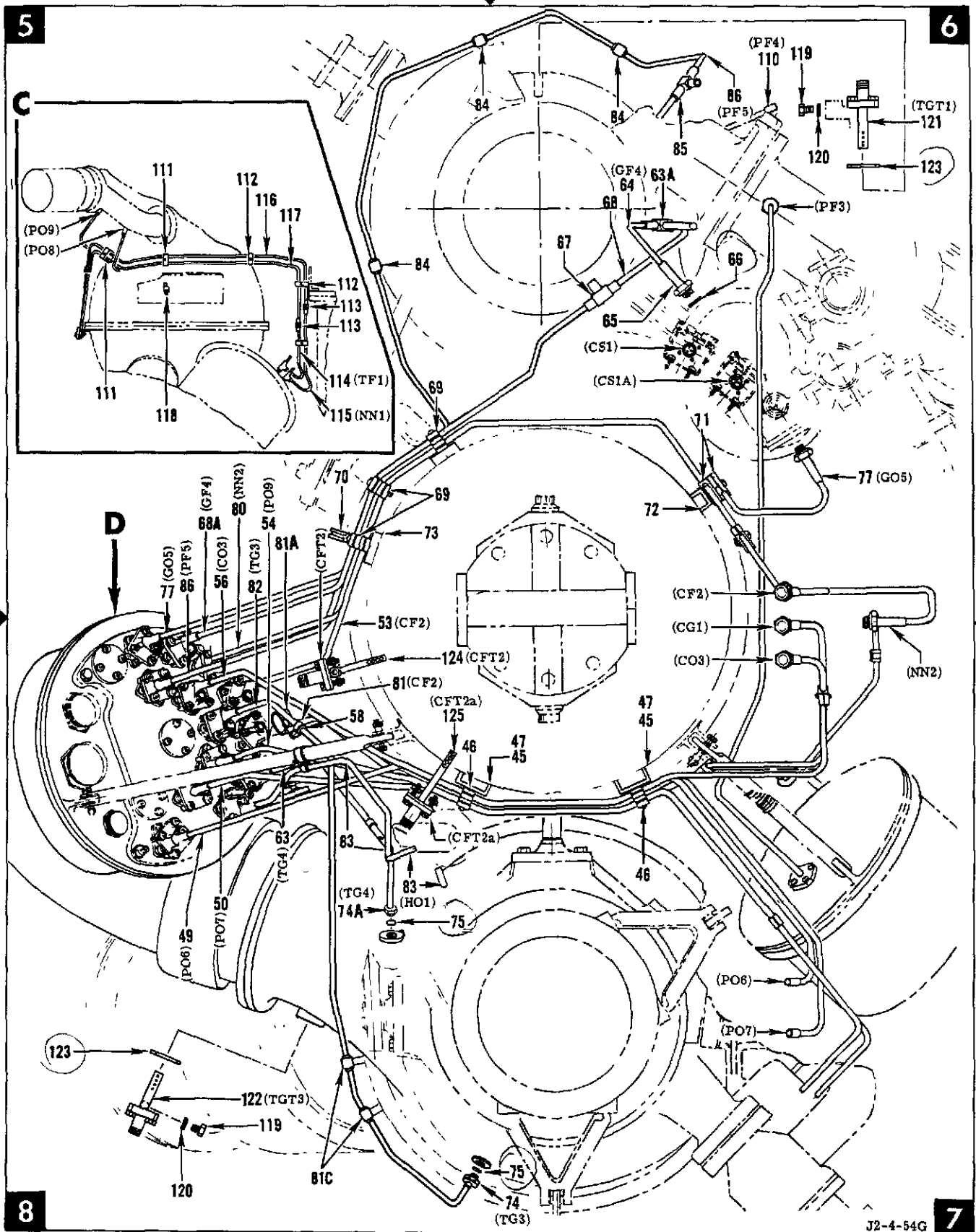


Figure 31. Flight Instrumentation and Auxiliary Package Assembly (Sheet 2 of 3)

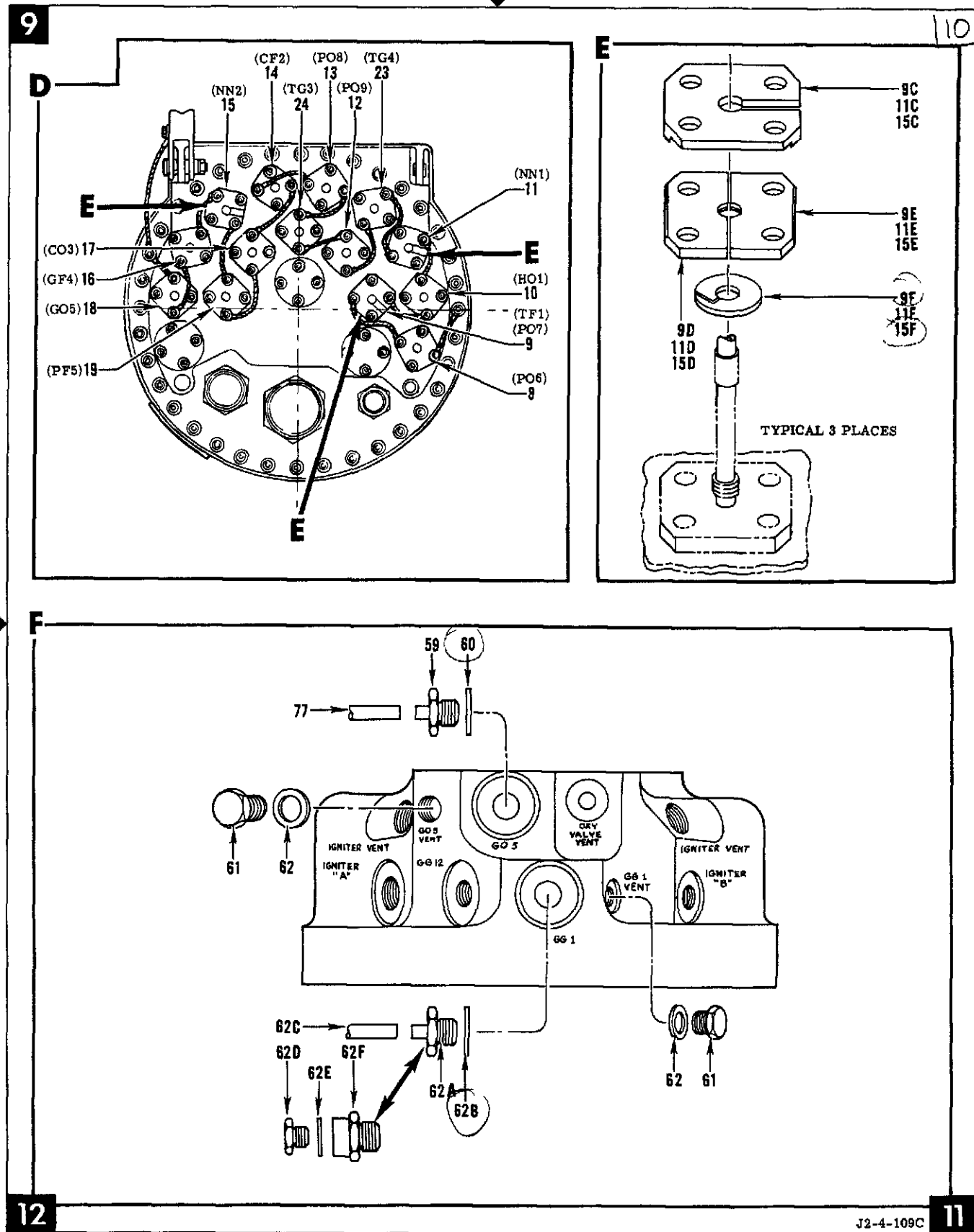


Figure 31. Flight Instrumentation and Auxiliary Package Assembly (Sheet 3 of 3)

FIG. & INDEX NO	ZONE NO	PART NUMBER	DESCRIPTION	UNITS PER ASSY					USABLE ON CODE
			1 2 3 4 5 6 7	REF	REF	REF	REF	REF	
31-			FLIGHT INSTRUMENTATION AND AUXILIARY PACKAGE ASSEMBLY						
		702527	FLIGHT INSTRUMENTATION INSTL (See figure 1)	REF	REF	REF	REF	REF	ESB
		703680	PACKAGE ASSY, Flight instrumentation, ...	1					ERB
		703680-11	PACKAGE ASSY, Flight instrumentation, ...		1				GDL
		704090	PACKAGE ASSY, Flight instrumentation, ...			1			HDC
		704090-21 (a)	PACKAGE ASSY, Flight instrumentation, ...				1		NCD
		704090-91	PACKAGE ASSY, Flight instrumentation, ...					1	PDC
		704090-131	PACKAGE ASSY, Flight instrumentation, ...					1	MYB
		704090-101	PACKAGE ASSY, Flight instrumentation, ...					1	PGA
		704090-171	PACKAGE ASSY, Flight instrumentation, ...					1	QRB
		704090-231	PACKAGE ASSY, Flight instrumentation, ...					1	
			auxiliary (Engines not incorporating MD376 change)						
			auxiliary (Engines incorporating MD376 change)						
			PARTIAL BREAKDOWN FOLLOWS						
- 1	2	RD111-3008-3415	BOLT	25	25	25	25	25	
- 2	2	RD111-3006-4216	BOLT	11	11	11	11	11	
- 3	2	LD133-0013-0002	WASHER	36	36	36	36	36	
- 4	3	702614	ENCLOSURE ASSY, Flight instrumentation	1	1	1	1	1	
			package auxiliary						
- 5	3	1191-4CNVX375	INSERT (MFD by 91787)	36	36	36	36	36	
- 6	3	MS9021-278	PACKING	1	1	1	1	1	
- 7	3	MS25083-2BC6	JUMPER ASSY	1	1	1	1	1	
		702642	PLATE, Instruction	1	1	1	1	1	
		RD171-1042-0001	PLATE	1	1	1	1	1	
		703679	PLATE ASSY, Flight instrumentation, ...	1					
			package, auxiliary						
		703679-11	PLATE ASSY, Flight instrumentation, ...		1				
			package, auxiliary						
		704089	PLATE ASSY, Flight instrumentation, ...			1			
			package, auxiliary						
		704089-21	PLATE ASSY, Flight instrumentation, ...				1		
			package, auxiliary						
		704089-91	PLATE ASSY, Flight instrumentation, ...					1	NCD
			package, auxiliary						
		704089-131	PLATE ASSY, Flight instrumentation, ...					1	PDC
			package, auxiliary (NHA 704090-131)						
		704089-101	PLATE ASSY, Flight instrumentation, ...					1	MYB
			package, auxiliary (NHA 704090-101)						
		704089-171	PLATE ASSY, Flight instrumentation, ...					1	PGA
			package, auxiliary (NHA 704090-171)						
			(Engines not incorporating MD376 change)						
		704089-231	PLATE ASSY, Flight instrumentation, ...					1	QRB
			auxiliary (NHA 704090-231) (Engines incorporating MD376 change)						
			PARTIAL BREAKDOWN FOLLOWS						
- 8	2,9	NA5-27412T05T (a)	TRANSDUCER, Absolute pressure, DC-DC . . .	1	1	1	1	1	
			type (LOX pump primary seal cavity)						
			(Tap PO6) (Alternate NA5-27440T05T)						
			(J189)						
- 8A	2	703677	PLUG ASSY, Straight, 14S-6S shell	1	1	1	1	1	
			size (LOX pump primary seal cavity) (P189)						
- 8B	1	RD421-5001-0016	INSULATOR (NHA 704090-101)	6	6	6	6	6	
- 9	2,9	NA5-27412T5T (a)	TRANSDUCER, Absolute pressure, DC-DC . . .	1	1	1	1	1	
			type (LOX pump bearing coolant)						
			(Tap POT) (Alternate NA5-27440T5T)						
			(Removed on engines incorporating MD269, MD282, MD296, MD313, or MD315 change) (J190)						
- 9	2,9	NA5-27412T35T (a)	TRANSDUCER, Absolute pressure, DC-DC . . .					1	
			type (Start tank pressure NO. 2) (Tap TF1) (Alternate NA5-27440T35T)						
			(Redundant instrumentation added on engines incorporating MD269, MD282, MD296, MD313, or MD315 change) (J190)						
- 9A	2	703677	PLUG ASSY, Straight, 14S-6S shell size	1	1	1	1	1	
			(LOX pump bearing coolant, or start tank pressure NO. 2) (P190)						
(a) For interchangeability status, refer to the Component Interchangeability List.									

R-3825-4

2-140 Change No. 4 — 9 May 1972

Flight Instrumentation System

FIG & INDEX NO	ZONE NO	PART NUMBER	DESCRIPTION							UNITS PER ASSY					USABLE ON CODE
			1	2	3	4	5	6	7						
31-16A	2	703677	.	.	.	.	.	.	PLUG ASSY, Straight, 14S-6S shell size (G. G. fuel injector) (P182)	1	1	1	1	1	
-16B	1	RD421-5001-0016	.	.	.	.	.	.	INSULATOR (NHA 704089-101)	6	6	6	6	6	
-17	2, 9	NA5-27412T10T (a)	.	.	.	.	.	.	TRANSDUCER, Absolute pressure, DC-DC . . type (Main LOX injector) (Tap CO3) (Alternate NA5-27440T10T) (J193)	1	1				
-17	2, 9	NA5-27412T15T (a)	.	.	.	.	.	.	TRANSDUCER, Absolute pressure, DC-DC . . type (Main LOX injector) (Tap CO3) (Alternate NA5-27440T15T) (J193)			1	1	1	
-17A	2	703677	.	.	.	.	.	.	PLUG ASSY, Straight, 14S-6S shell size (Main LOX injector) (P193)	1	1	1	1	1	
-17B	1	RD421-5001-0016	.	.	.	.	.	.	INSULATOR (NHA 704089-101)	6	6	6	6	6	
-18	2, 9	NA5-27412T10T (a)	.	.	.	.	.	.	TRANSDUCER, Absolute pressure, DC-DC . . type (G. G. LOX injector) (Tap GO5) (Alternate NA5-27440T10T) (J181)	1	1				
-18	2, 9	NA5-27412T15T (a)	.	.	.	.	.	.	TRANSDUCER, Absolute pressure, DC-DC . . type (G. G. LOX injector) (Tap GO5) (Alternate NA5-27440T10T) (J181)			1	1	1	
-18A	2	703677	.	.	.	.	.	.	PLUG ASSY, Straight, 14S-6S shell size (G. G. LOX injector) (P181)	1	1	1	1	1	
-18B	1	RD421-5001-0016	.	.	.	.	.	.	INSULATOR (NHA 704089-101)	6	6	6	6	6	
-19	2, 9	NA5-27412T10T (a)	.	.	.	.	.	.	TRANSDUCER, Absolute pressure, DC-DC . . type (Fuel pump balance piston cavity) (Tap PF5) (Alternate NA5-27440T10T) (J194)	1	1	1	1	1	
-19A	2, 9	703677	.	.	.	.	.	.	PLUG ASSY, Straight, 14S-6S shell size (Fuel pump balance piston cavity) (P194)	1	1	1	1	1	
-19B	1	RD421-5001-0016	.	.	.	.	.	.	INSULATOR (NHA 704089-101)	6	6	6	6	6	
-20	2	RD111-3006-4223	.	.	.	.	.	.	BOLT (AP)	4	4	4	4	4	
-21	2	AS30	.	.	.	.	.	.	WASHER (MFD by 10630) (AP)	4	4	4	4	4	
-22	2	MS29513-021	.	.	.	.	.	.	PACKING	15	15	15	15	15	
-23	2, 9	NA5-27412T1T (a)	.	.	.	.	.	.	TRANSDUCER, Absolute pressure, DC-DC . . type (LOX turbine outlet) (Tap TG4) (Alternate NA5-27440T1T) (J186)	1	1	1	1	1	
-23A	2	703677	.	.	.	.	.	.	PLUG ASSY, Straight, 14S-6S shell size (LOX turbine outlet) (P186)	1	1	1	1	1	
-23B	1	RD421-5001-0016	.	.	.	.	.	.	INSULATOR (NHA 704089-101)	6	6	6	6	6	
-24	2, 9	NA5-27412T2T (a)	.	.	.	.	.	.	TRANSDUCER, Absolute pressure, DC-DC . . type (LOX turbine inlet) (Tap TG3) (Alternate NA5-27440T2T) (J192)	1	1	1	1	1	
-24A	2	703677	.	.	.	.	.	.	PLUG ASSY, Straight, 14S-6S shell size (LOX turbine inlet) (P192)	1	1	1	1	1	
-24AA	1	RD421-5001-0016	.	.	.	.	.	.	INSULATOR (NHA 704089-101)	6	6	6	6	6	
-24B	2	703677	.	.	.	.	.	.	PLUG ASSY, Straight, 14S-6S shell size (P195)	1	1	1	1	1	
-24C	2	703677	.	.	.	.	.	.	PLUG ASSY, Straight, 14S-6S shell size (P196)	1	1	1	1	1	
-24D	2	703677	.	.	.	.	.	.	PLUG ASSY, Straight, 14S-6S shell size (P197)	1	1	1	1	1	
-24E	2	RD261-2006-0014	.	.	.	.	.	.	GASKET	17	17	17	17	17	
		MS25083-2CC2	.	.	.	.	.	.	JUMPER ASSY				6	6	
		MS25083-2CC3	.	.	.	.	.	.	JUMPER ASSY				8	9	
-25	2	RD111-3006-4223	.	.	.	.	.	.	BOLT (AP)	4	4	4	4	4	
-26	2	AS30	.	.	.	.	.	.	WASHER (MFD by 10630) (AP)	4	4	4	4	4	
-27	2	MS29513-021	.	.	.	.	.	.	PACKING	2	2	2	2	2	
-28	3	558272-41	.	.	.	.	.	.	VALVE ASSY, Air filler (Pressurizing valve) (Altered from RD284-1001-0002) (Replaces 558272-31) (See ECP J2-711) (See figure 7 for partial breakdown)	1	1	1	1	1	QRB
-28A	3	MS29513-014	.	.	.	.	.	.	PACKING	1	1	1	1	1	
-29	3	AN814-5DL	.	.	.	.	.	.	PLUG AND BLEEDER	1	1	1	1	1	
-29A	3	MS29512-05	.	.	.	.	.	.	PACKING	1	1	1	1	1	
-30	3	703689	.	.	.	.	.	.	DUMMY TRANSDUCER	3	3	3	3	3	
		RD111-3006-4223	.	.	.	.	.	.	BOLT (AP)	4	4	4	4	4	
		LD153-0013-0002	.	.	.	.	.	.	WASHER (AP)	4	4	4	4	4	
		AS30	.	.	.	.	.	.	WASHER (MFD by 10630) (AP)	4	4	4	4	4	
-30A	3	MS29513-021	.	.	.	.	.	.	PACKING	3	3	3	3	3	
-31	3	19-702996-17	.	.	.	.	.	.	RECEPTACLE ASSY, Jamnut, glass sealed, . 28-21P shell size (J152)	1	1	1	1	1	
-31A	1	RD421-5001-0016	.	.	.	.	.	.	INSULATOR (NHA 103850)	21	21	21	21	21	
-32	3	MS29513-133	.	.	.	.	.	.	PACKING	1	1	1	1	1	
-33	3	MS171553	.	.	.	.	.	.	PIN	1	1	1	1	1	
-34	3	19-702996-25	.	.	.	.	.	.	RECEPTACLE ASSY, Jamnut, glass sealed, . 36-10P shell size (J151)	1	1	1	1	1	
-34A	1	RD421-5001-0016	.	.	.	.	.	.	INSULATOR (NHA 103850)	10	10	10	10	10	

(a) For interchangeability status, refer to the
Component Interchangeability List.

Section II

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Flight Instrumentation System

FIG & INDEX NO	ZONE NO	PART NUMBER	DESCRIPTION							UNITS PER ASSY.					USABLE ON CODE
			1	2	3	4	5	6	7						
31-35	3	MS29513-141	.	.	.	.	.	.	PACKING	1	1	1	1	1	JP JYA
-36	3	MS171553	.	.	.	.	.	.	PIN	1	1	1	1	1	
-37	3	19-702996-1	.	.	.	.	.	.	RECEPTACLE ASSY, Jamnut, glass sealed, 18-1P shell size (J150)	1	1	1	1	1	
-37A	1	RD421-5001-0016	.	.	.	.	.	.	INSULATOR (NHA 103850)	1	1	1	1	1	
-38	3	MS29513-123	.	.	.	.	.	.	PACKING	1	1	1	1	1	
-39	3	MS171553	.	.	.	.	.	.	PIN	1	1	1	1	1	
-39A	3	703692	.	.	.	.	.	.	PLATE ASSY, Flight instrumentation, auxiliary	1					
-39A	3	703692-11	.	.	.	.	.	.	PLATE ASSY, Flight instrumentation, auxiliary		1	1	1	1	
-40	4	704341	.	.	.	.	.	.	ADAPTER, Flight instrumentation, boss to tube	1	1	1	1	1	
-41	4	404659	.	.	.	.	.	.	SEAL, Pressure-actuated	1	1	1	1	1	
-41	4	408767	(a)	.	.	.	.	.	SEAL, Pressure-actuated, cryogenic				1	1	JP JYA
-41A	4	703885	.	.	.	.	.	.	TUBE ASSY, Heat exchanger, oxidizer inlet pressure, flight instrumentation	1	1	1	1	1	
		RD172-0001-0001	.	.	.	.	.	.	TAPE (ROCKET OXIDIZER)	AR	AR	AR	AR	AR	
		RD172-0014-0027	.	.	.	.	.	.	TAPE (LIQUID OXYGEN)	AR	AR	AR	AR	AR	
		RD172-0018-1000	.	.	.	.	.	.	TAPE (1000 PSI)	AR	AR	AR	AR	AR	
		703885-3	.	.	.	.	.	.	TUBE, 321 CRES, 1/4 IN. OD by 0.028 gage by 48.00 IN. LG	1	1	1	1	1	
-42	1, 3, 4	RD273-1020-1002	.	.	.	.	.	.	PLUG AND BLEEDER	5	5	5	5	5	
-43	1, 3, 4	RD261-6001-0001	.	.	.	.	.	.	GASKET	5	5	5	5	5	
-44	4	RD127-1001-0002	.	.	.	.	.	.	CLAMP	8	8	8	8	8	
		RD127-1001-0003	.	.	.	.	.	.	CLAMP	8	8	8	8	8	
		NAS1101C3-16	.	.	.	.	.	.	SCREW (AP)	1	1	1	1	1	JP JYA
		LD153-0013-0001	.	.	.	.	.	.	WASHER (AP)	1	1	1	1	1	
		LD153-0010-0008	.	.	.	.	.	.	WASHER (AP)	1	1	1	1	1	
		NAS679C3W	.	.	.	.	.	.	NUT (AP)	1	1	1	1	1	
-45	7, 8	703087	.	.	.	.	.	.	BLOCK, Clamping half	8	8	8	8	8	
		106455	.	.	.	.	.	.	BOLT, Clamping blockup	1	1	1	1	1	
-46	7, 8	502830	.	.	.	.	.	.	BRACKET, Harness throat ring, thrust chamber support	2	2	2	2	2	
-47	7, 8	702534	.	.	.	.	.	.	CHANNEL, Tube support	2	2	2	2	2	
-48	4	RD273-1023-0005	.	.	.	.	.	.	SLEEVE (RD273-1029-0002 sleeve may be installed).	2	2	2	2	2	
-49	4, 8	703721	.	.	.	.	.	.	TUBE ASSY, Downstream stage instrumentation PO8	1	1	1	1	1	
		RD172-0001-0001	.	.	.	.	.	.	TAPE (ROCKET OXIDIZER)	AR	AR	AR	AR	AR	JP JYA
		RD172-0014-0027	.	.	.	.	.	.	TAPE (LIQUID OXYGEN)	AR	AR	AR	AR	AR	
		RD172-0018-0025	.	.	.	.	.	.	TAPE (25 PSI)	AR	AR	AR	AR	AR	
		703721-3	.	.	.	.	.	.	TUBE, 321 CRES, 1/4 IN. OD by 0.028 gage by 49.00 IN. LG	1	1	1	1	1	
		703096	.	.	.	.	.	.	TEE, Instrumentation system (556120 tee may be installed)	1	1	1	1	1	
-50	4, 8	703719	.	.	.	.	.	.	TUBE ASSY, Downstream stage instrumentation PO7	1	1	1	1	1	
		RD172-0001-0001	.	.	.	.	.	.	TAPE (ROCKET OXIDIZER)	AR	AR	AR	AR	AR	
		RD172-0014-0027	.	.	.	.	.	.	TAPE (LIQUID OXYGEN)	AR	AR	AR	AR	AR	
		RD172-0018-0150	.	.	.	.	.	.	TAPE (150 PSI)	AR	AR	AR	AR	AR	
		703719-3	.	.	.	.	.	.	TUBE, 321 CRES, 1/4 IN. OD by 0.028 gage by 49.00 IN. LG	1	1	1	1	1	
		703096	.	.	.	.	.	.	TEE, Instrumentation system (556120 tee may be installed)	1	1	1	1	1	JP JYA
-51	4	702528	.	.	.	.	.	.	ADAPTER, Flight instrumentation, boss tube	3	3	3	3	3	
-52	4	404659	.	.	.	.	.	.	SEAL, Pressure-actuated	3	3	3	3	3	
-52	4	408767	(a)	.	.	.	.	.	SEAL, Pressure-actuated, cryogenic				3	3	
-53	4, 5	703095	.	.	.	.	.	.	TUBE ASSY, Flight instrumentation	1	1	1	1	1	
		RD172-0001-0001	.	.	.	.	.	.	TAPE (ROCKET OXIDIZER)	AR	AR	AR	AR	AR	
		RD172-0014-0027	.	.	.	.	.	.	TAPE (LIQUID OXYGEN)	AR	AR	AR	AR	AR	
		RD172-0018-1000	.	.	.	.	.	.	TAPE (1000 PSI)	AR	AR	AR	AR	AR	
		703095-3	.	.	.	.	.	.	TUBE, 321 CRES, 1/4 IN. OD by 0.028 gage by 57.38 IN. LG	1	1	1	1	1	
-54	4, 5	703094	.	.	.	.	.	.	TUBE ASSY, Flight instrumentation	1	1	1	1	1	
		RD172-0001-0001	.	.	.	.	.	.	TAPE (ROCKET OXIDIZER)	AR	AR	AR	AR	AR	JP JYA
		RD172-0014-0027	.	.	.	.	.	.	TAPE (LIQUID OXYGEN)	AR	AR	AR	AR	AR	
		RD172-0018-0500	.	.	.	.	.	.	TAPE (500 PSI)	AR	AR	AR	AR	AR	
		703094-3	.	.	.	.	.	.	TUBE, 321 CRES, 1/4 IN. OD by 0.028 gage by 59.62 IN. LG	1	1	1	1	1	
-55		DELETED	.	.	.	.	.	.							
-56	5	703878	.	.	.	.	.	.	TUBE ASSY, Main oxidizer injection pressure, flight instrumentation	1	1	1	1	1	
		RD172-0001-0001	.	.	.	.	.	.	TAPE (ROCKET OXIDIZER)	AR	AR	AR	AR	AR	
		RD172-0014-0027	.	.	.	.	.	.	TAPE (LIQUID OXYGEN)	AR	AR	AR	AR	AR	
		RD172-0018-1000	.	.	.	.	.	.	TAPE (1000 PSI)	AR	AR	AR	AR	AR	
			.	.	.	.	.	.							

(a) For interchangeability status, refer to the Component Interchangeability List.

Flight Instrumentation System

FIG. & INDEX NO	ZONE NO	PART NUMBER	DESCRIPTION							UNITS PER ASSY					USABLE ON CODE
			1	2	3	4	5	6	7						
31-		703878-3	.	.	.	TUBE, 321 CRES, 1/4 IN. OD by 0.028	.	.	.	1	1	1	1	1	
			.	.	.	gage by 59.00 IN. LG									
-57		DELETED	.	.	.	CLAMP	.	.	.	4	4	4	4	4	
-58	8	RD127-1001-0004	.	.	.	SCREW (AP)	.	.	.	1	1	1	1	1	
		NAS1101C3-16	.	.	.	WASHER (AP)	.	.	.	1	1	1	1	1	
		LD153-0013-0001	.	.	.	WASHER (AP)	.	.	.	1	1	1	1	1	
		LD153-0010-0008	.	.	.	NUT (AP)	.	.	.	1	1	1	1	1	
		NAS679C3W	.	.	.	ADAPTER, Flight instrumentation, boss to tube	.	.	.	1	1	1	1	1	
-59	12	702528	.	.	.	SEAL, Pressure-actuated	.	.	.	1	1	1	1	1	
-60	12	404659	.	.	.	SEAL, Pressure-actuated, cryogenic	.	.	.	1	1	1	1	1	JP
-61	11, 12	RD273-1020-1002	.	.	.	PLUG AND BLEEDER	.	.	.	3	3	3	3	3	JYA
-62	11, 12	RD261-6001-0001	.	.	.	GASKET	.	.	.	3	3	3	3	3	
-62A	12	703966	.	.	.	ADAPTER, Flight instrumentation	.	.	.	1	1	1	1	1	
-62B	12	406346	.	.	.	SEAL, Pressure-actuated, hot gas	.	.	.	1	1	1	1	1	JP
-62B	12	408799	.	.	.	SEAL, Pressure-actuated, hot gas	.	.	.						JYA
-62C	12	703876	.	.	.	TUBE ASSY, Gas generator chamber pressure, flight instrumentation (See figure 33, index 45, for REQMT)	.	.	.	REF	REF	REF	REF	REF	
-62D	12	RD273-1020-1002	.	.	.	PLUG AND BLEEDER (May be used for spares on engines J-2140 THRU J-2152)	.	.	.						
-62E	12	RD261-6001-0001	.	.	.	GASKET (May be used for spares on engines J-2140 THRU J-2152)	.	.	.						
-62F	12	RD265-3009-0002	.	.	.	PLUG (May be used for spares on engines J-2140 THRU J-2152)	.	.	.						
-63		703715	.	.	.	TUBE ASSY, Downstream stage instrumentation, TG4	.	.	.	1	1	1	1	1	CRL
-63		703715-11	.	.	.	TUBE ASSY, Downstream stage instrumentation, TG4	.	.	.						JWA
		RD172-0014-0006	.	.	.	TAPE (COMBUSTION GAS)	.	.	.	AR	AR	AR	AR	AR	
		RD172-0018-0050	.	.	.	TAPE (50 PSI)	.	.	.	AR	AR	AR	AR	AR	
		703715-3	.	.	.	TUBE, 321 CRES, 1/4 IN. OD by 0.028 gage by 14.00 IN. LG (NHA 703715)	.	.	.	1	1	1	1	1	
		703715-5	.	.	.	TUBE, 321 CRES, 1/4 IN. OD by 0.028 gage by 72.00 IN. LG (NHA 703715-11)	.	.	.						
-63A	6	703096	.	.	.	TEE, Instrumentation system (556120 tee may be installed)	.	.	.	1	1	1	1	1	
-64	6	703563	.	.	.	TUBE ASSY, GF4 port to purge tee, flight instrumentation	.	.	.	1	1	1	1	1	
		RD172-0002-0001	.	.	.	TAPE (ROCKET FUEL)	.	.	.	AR	AR	AR	AR	AR	
		RD172-0018-0800	.	.	.	TAPE (800 PSI)	.	.	.	AR	AR	AR	AR	AR	
		RD172-0014-0026	.	.	.	TAPE (LIQUID HYDROGEN)	.	.	.	AR	AR	AR	AR	AR	
		703563-3	.	.	.	TUBE, 321 CRES, 1/4 IN. OD by 0.028 gage by 11.50 IN. LG	.	.	.	1	1	1	1	1	
-65	6	702528	.	.	.	ADAPTER, Flight instrumentation, boss to tube	.	.	.	1	1	1	1	1	
-66	6	404659	.	.	.	SEAL, Pressure-actuated	.	.	.	1	1	1	1	1	JP
-66	6	408767	.	.	.	SEAL, Pressure-actuated, cryogenic	.	.	.						JYA
-67	4	556120	.	.	.	TEE, Pneumatic system	.	.	.	1	1				
-67	4	703096	.	.	.	TEE, Instrumentation system (556120 tee may be installed)	.	.	.						
-68	6	704176	.	.	.	TUBE, Upstream flight instrumentation, GF4	.	.	.	1	1	1	1	1	
-68A	6	703725	.	.	.	TUBE ASSY, Downstream stage instrumentation GF4	.	.	.	1	1	1	1	1	
		RD172-0002-0001	.	.	.	TAPE (ROCKET FUEL)	.	.	.	AR	AR	AR	AR	AR	
		RD172-0014-0026	.	.	.	TAPE (LIQUID HYDROGEN)	.	.	.	AR	AR	AR	AR	AR	
		RD172-0018-0800	.	.	.	TAPE (800 PSI)	.	.	.	AR	AR	AR	AR	AR	
		703725-3	.	.	.	TUBE, 321 CRES, 1/4 IN. OD by 0.028 gage by 42.38 IN. LG	.	.	.	1	1	1	1	1	
		703096	.	.	.	TEE, Instrumentation system (556120 tee may be installed)	.	.	.	1	1	1	1	1	
-69	5	RD127-1001-0003	.	.	.	CLAMP	.	.	.	12	12	12	12	12	
-70	5	RD127-2001-0002	.	.	.	CLAMP	.	.	.	1	1	1	1	1	
		NAS1101C3-26	.	.	.	SCREW (AP)	.	.	.	1	1	1	1	1	
		RD153-1002-0003	.	.	.	WASHER (AP)	.	.	.	1	1	1	1	1	
		NAS43DD5-8	.	.	.	SPACER (AP)	.	.	.	1	1	1	1	1	
		NAS679C3W	.	.	.	NUT (AP)	.	.	.	1	1	1	1	1	
-71	6	703564	.	.	.	BLOCK, Clamping half	.	.	.	4	4	4	4	4	
		106455	.	.	.	BOLT, Clamping block (AP)	.	.	.	1	1	1	1	1	
		NAS43DD5-8	.	.	.	SPACER (AP)	.	.	.	1	1	1	1	1	
		NAS43DD1-40	.	.	.	SPACER (AP)	.	.	.	1	1	1	1	1	
-72	6	703566	.	.	.	SPACER, Tube clamp	.	.	.	1	1	1	1	1	
-73	5	703561	.	.	.	BRACKET, Support flight instrumentation	.	.	.	1	1	1	1	1	
-74	8	702547	.	.	.	ADAPTER, Flight instrumentation, boss to tube	.	.	.	1	1	1	1	1	
-74A	8	702528	.	.	.	ADAPTER, Flight instrumentation, boss to tube	.	.	.	1	1	1	1	1	
-75	8	406346	.	.	.	SEAL, Pressure-actuated, hot gas	.	.	.	2	2	2	2	2	
-75	8	408799	.	.	.	SEAL, Pressure-actuated, hot gas	.	.	.	2?					

(a) For interchangeability status, refer to the Component Interchangeability List.

(a) For interchangeability status, refer to the Component Interchangeability List.

Section II
Flight Instrumentation System

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FIG. & INDEX NO	ZONE NO.	PART NUMBER	DESCRIPTION	UNITS PER ASSY					USABLE ON CODE
			1 2 3 4 5 6 7						
31-75	6, 8	408767 (a)	SEAL, Pressure-actuated, cryogenic				1	1	JYA
-76	4	556120	TEE, Pneumatic system	1	1	1	1	1	
-77	4, 5, 12	703562	TUBE, GO5 port to purge tee, flight instrumentation	1					
-77	4, 5, 12	704193	TUBE ASSY, Gas generator LOX injection pressure, GO5 port to purge tee, flight instrumentation		1	1	1	1	
		RD172-0001-0001	TAPE (ROCKET OXIDIZER)	AR	AR	AR	AR	AR	
		RD172-0018-0800	TAPE (800 PSI)		AR	AR	AR	AR	
		704193-3	TUBE, 321 CRES, 1/4 IN. OD by 0.028 gage by 12.25 IN. LG	1	1	1	1	1	
-78	4	703712	TUBE ASSY, Upstream stage instrumentation GO5	1					CRO
-78	4	704194	TUBE ASSY, Gas generator LOX injection pressure, purge tee to auxiliary (flight package, flight instrumentation GO5		1	1	1	1	
		RD172-0001-0001	TAPE (ROCKET OXIDIZER)	AR	AR	AR	AR	AR	
		RD172-0014-0027	TAPE (LIQUID OXYGEN)	AR	AR	AR	AR	AR	
		RD172-0018-0800	TAPE (800 PSI)	AR	AR	AR	AR	AR	
		703712-3	TUBE, 321 CRES, 1/4 IN. OD by 0.028 gage by 72.00 IN. LG	1					
		704194-3	TUBE, 321 CRES, 1/4 IN. OD by 0.028 gage by 65.00 IN. LG		1	1	1	1	
-79	4	703374	TUBE ASSY, Engine regulator outlet pressure downstream, flight instrumentation	1	1	1	1	1	
		RD172-0012-0001	TAPE (PNEUMATIC)	AR	AR	AR	AR	AR	
		RD172-0014-0018	TAPE (HELIUM)	AR	AR	AR	AR	AR	
		RD172-0018-0400	TAPE (400 PSI)	AR	AR	AR	AR	AR	
		703374-3	TUBE, 321 CRES, 1/4 IN. OD by 0.028 gage by 55.12 IN. LG	1	1	1	1	1	
		703096	TEE, Instrumentation system (556120 tee may be installed)	1	1	1	1	1	
-80	4, 5	703710	TUBE ASSY, Upstream stage instrumentation NN2	1	1	1	1	1	
		RD172-0012-0001	TAPE (PNEUMATIC)	AR	AR	AR	AR	AR	
		RD172-0014-0018	TAPE (HELIUM)	AR	AR	AR	AR	AR	
		RD172-0018-0450	TAPE (450 PSI)	AR	AR	AR	AR	AR	
		703710-3	TUBE, 321 CRES, 1/4 IN. OD by 0.028 gage by 14.00 IN. LG	1	1	1	1	1	
		703096	TEE, Instrumentation system (556120 tee may be installed)	1	1	1	1	1	
-81	4, 5	703879	TUBE ASSY, Main fuel injection pressure, flight instrumentation	1	1	1	1	1	VL
-81	4, 5	704395	TUBE ASSY, CF2 flight instrumentation port to tee					1	JWA
-81	4, 5	704396	TUBE ASSY, CF2 flight instrumentation, tee to transducer					1	JWA
		RD172-0002-0001	TAPE (ROCKET FUEL)	AR	AR	AR	AR	AR	
		RD172-0014-0019	TAPE (HYDROGEN)	AR	AR	AR	AR	AR	
		RD172-0018-1000	TAPE (1000 PSI)	AR	AR	AR	AR	AR	
		703879-3	TUBE, 321 CRES, 1/4 IN. OD by 0.028 gage by 67.00 IN. LG	1	1	1	1	1	
		704395-3	TUBE, 321 CRES, 1/4 IN. OD by 0.028 gage by 67.00 IN. LG					1	
		704396-3	TUBE, 321 CRES, 1/4 IN. OD by 0.028 gage by 67.00 IN. LG					1	
-81A	8	RE127-2001-0002	CLAMP	2	2	2	2	2	
		NAS1101C3-8	SCREW (AP)	1	1	1	1	1	
		NAS679C3W	NUT (AP)	1	1	1	1	1	
-82	5	703559	TUBE ASSY, Oxidizer turbine inlet pressure, flight instrumentation	1	1	1	1	1	JR
-82	5	703559-11	TUBE ASSY, Oxidizer turbine inlet pressure, flight instrumentation					1	JWA
		RD172-0014-0006	TAPE (COMBUSTION GAS)	AR	AR	AR	AR	AR	
		RD172-0018-0100	TAPE (100 PSI)	AR	AR	AR	AR	AR	
		703559-3	TUBE, 321 CRES, 1/4 IN. OD by 0.028 gage by 47.25 IN. LG (NHA 703559)	1	1	1	1	1	
		703559-5	TUBE, 321 CRES, 1/4 IN. OD by 0.028 gage by 72.00 IN. LG (NHA 703559-11)					1	
-83	8	703557	TUBE ASSY, Hydrogen tank pressure line to tee, flight instrumentation	1	1				FDB
		RD172-0002-0001	TAPE (ROCKET FUEL)	AR	AR				
		RD172-0014-0026	TAPE (LIQUID HYDROGEN)	AR	AR				
		RD172-0018-1000	TAPE (1000 PSI)	AR	AR				
		703557-3	TUBE, 321 CRES, 1/4 IN. OD by 0.028 gage by 50.00 IN. LG	1	1				

(a) For interchangeability status, refer to the Component Interchangeability List.

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FIG & INDEX NO	ZONE NO	PART NUMBER	DESCRIPTION							UNITS PER ASSY.					USABLE DN CODE
			1	2	3	4	5	6	7						
31-26		703096	.	.	TEE, Instrumentation system (556120 tee may	1	1								JYA
			.	.	be installed)										
		702547	.	.	ADAPTER, Flight instrumentation, boss to tube	1	1								
		404659	.	.	SEAL, Pressure-actuated	1	1								
		408767	.	.	SEAL, Pressure-actuated, cryogenic	1	1								
	5, 6	RE127-2001-0002	.	.	CLAMP	3	3	3	3	3					
		NAS1101C3-8	.	.	SCREW (AP)	1	1	1	1	1					
		NAS679C3W	.	.	NUT (AP)	1	1	1	1	1					
-84		703096	.	.	TEE, Instrumentation system (556120 tee may	1	1	1	1	1					
			.	.	be installed)										
-85	6	703096	.	.	TEE, Instrumentation system (556120 tee may	1	1	1	1	1					
			.	.	be installed)										
-86	5, 6	703717	.	.	TUBE ASSY, Downstream stage	1	1	1	1	1					
			.	.	instrumentation PF5										
		RD172-0002-0001	.	.	TAPE (ROCKET FUEL)	AR	AR	AR	AR	AR					
		RD172-0014-0026	.	.	TAPE (LIQUID HYDROGEN)	AR	AR	AR	AR	AR					
		RD172-0018-0450	.	.	TAPE (450 PSI)	AR	AR	AR	AR	AR					
		703717-3	.	.	TUBE, 321 CRES, 1/4 IN. OD by 0.028	1	1	1	1	1					
			.	.	gage by 70.12 IN. LG										
-87	2	702533	.	.	STRUT ASSY, Auxiliary, instrumentation	1									
			.	.	package support (Welded)										
-87	2	702533-21	.	.	STRUT ASSY, Auxiliary, instrumentation		1	1	1	1					
			.	.	package support (Welded)										
-88	2	NAS1005-15A	.	.	BOLT (AP)	1	1	1	1	1					
-89	3	502295	.	.	PIN, Shear, shoulder strut attachment (AP)	1	1	1	1	1					
-90	2	LD153-0013-0003	.	.	WASHER (AP)	1	1	1	1	1					
-91	3	LD153-0010-0011	.	.	WASHER (AP)	1	1	1	1	1					
-92	2	NAS43DD5-10	.	.	SPACER (AP)	1	1	1	1	1					
-93	2	LD153-0010-0011	.	.	WASHER (AP)	1	1	1	1	1					
-94	3	LD153-0010-0009	.	.	WASHER (AP)	1	1	1	1	1					
-95	2	NAS679C5	.	.	NUT (AP)	1	1	1	1	1					
-96	3	NAS679C4W	.	.	NUT (AP)	1	1	1	1	1					
		KSEN5-10	.	.	BEARING (MFD by 97613)	1									
		RE131-5001-0003	.	.	BEARING		1	1	1	1					
-97	2	NAS679C5	.	.	NUT	1	1	1	1	1					
-98	2	LD153-0010-0012	.	.	WASHER	1	1	1	1	1					
-99	3	LD153-0013-0003	.	.	WASHER	1	1	1	1	1					
-100	3	NAS1005-18A	.	.	BOLT	1	1	1	1	1					
-101	2	NAS679C5	.	.	NUT	1	1	1	1	1					
-102	2	LD153-0010-0011	.	.	WASHER	1	1	1	1	1					
-103	2	NAS43DD5-9	.	.	SPACER	1	1	1	1	1					
-104	2	LD153-0013-0003	.	.	WASHER	1	1	1	1	1					
-105	2	NAS1005-20A	.	.	BOLT	1	1	1	1	1					
-106		DELETED													
-107	3	RD111-1011-3306	.	.	BOLT	1	1	1	1	1					
-108	3	LD153-0013-0001	.	.	WASHER	1	1	1	1	1					
-109		DELETED													
-110	6	703570	.	.	CAP, Tube, 1/4 IN. OD by 0.028 gage	1	1	1	1	1					
-111	5	RD127-1001-0002	.	.	CLAMP										
		NAS1101C3-26	.	.	SCREW (AP)										
		NAS43DD1-40	.	.	SPACER (AP)										
		RD153-1002-0003	.	.	WASHER (AP)										
		NAS679C3W	.	.	NUT (AP)										
-112	5	RD127-1001-0002	.	.	CLAMP										
		NAS1101C3-16	.	.	SCREW (AP)										
		RD153-1002-0003	.	.	WASHER (AP)										
		NAS679C3W	.	.	NUT (AP)										
-113	5	703096	.	.	TEE, Instrumentation system (556120 tee may										
			.	.	be installed)										
-114	5	704726-31	.	.	TUBE ASSY, Start tank redundant										
			.	.	flight instrumentation										
		RD172-0002-0001	.	.	TAPE (ROCKET FUEL)										
		RD172-0014-0019	.	.	TAPE (HYDROGEN)										
		RD172-0018-0850	.	.	TAPE (850 PSI)										
		704726-9	.	.	TUBE, 321 CRES, 1/4 IN. OD by 0.028										
			.	.	gage by 36.00 IN. LG										
-115	5	704727-31	.	.	TUBE ASSY, Helium tank pressure,										
			.	.	redundant flight instrumentation										
		RD172-0012-0001	.	.	TAPE (PNEUMATIC)										
		RD172-0014-0018	.	.	TAPE (HELIUM)										
		704727-9	.	.	TUBE, 321 CRES, 1/4 IN. OD by 0.028										
			.	.	gage by 36.00 IN. LG										
-116	5	704730	.	.	TUBE ASSY, Helium tank pressure,										
			.	.	redundant flight instrumentation										
		RD172-0012-0001	.	.	TAPE (PNEUMATIC)										
		RD172-0014-0018	.	.	TAPE (HELIUM)										
		RD172-0018-3250	.	.	TAPE (3250 PSI)										
		704730-3	.	.	TUBE, 321 CRES, 1/4 IN. OD by 0.028										
			.	.	gage by 85.00 IN. LG										
(a) For interchangeability status, refer to the Component Interchangeability List.															

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FIG. & INDEX NO	ZONE NO.	PART NUMBER	DESCRIPTION							UNITS PER ASSY	USABLE ON CODE
			1	2	3	4	5	6	7		
31-117	5	704729	. .	TUBE ASSY, Start tank pressure, redundant						1	
				flight instrumentation							
		RD172-0002-0001	. . .	TAPE (ROCKET FUEL)						AR	
		RD172-0014-0019	. . .	TAPE (HYDROGEN)						AR	
		RD172-0018-0850	. . .	TAPE (850 PSI)						AR	
		704729-3	. . .	TUBE, 321 CRES, 1/4 IN. OD by 0.028						1	
				gage by 85.00 IN. LG							
-118	5	704386	. .	PLUG, Instrumentation tube						1	
-119	6, 8	RD273-1020-1002	. .	PLUG AND BLEEDER	2	2	2	2	2	2	
-120	6, 8	RD261-6001-0001	. .	GASKET	2	2	2	2	2	2	
-121	6	NA5-27323T6	. .	TRANSDUCER, Temperature, resistance-type	1	1	1	1	1	1	
				for hot-gas service (Fuel pump turbine inlet temp) (Tap TGT1) (J126)							
-122	8	NA5-27323T6	. .	TRANSDUCER, Temperature, resistance-type	1	1	1	1	1	1	
				for hot-gas service (Oxidizer pump turbine inlet temp) (Tap TGT3) (J127)							
		RD111-1009-3411	. .	BOLT (AP)	4	4	4	4	4	4	
		LD153-0013-0002	. .	WASHER (AP)	4	4	4	4	4	4	
		RD191-4002-1005	. .	LUG	2	2	2	2	2	2	
-123	6, 8	404666-7	. .	SEAL, Pressure-actuated, instrumentation	2	2	2	2	2	2	JP
-123	6, 8	459721 (a)	. .	SEAL, Pressure-actuated, instrumentation	2	2	2	2	2	2	JYA
-124	8	NA5-27441		TRANSDUCER, Temperature, resistance type	REF	REF	REF	REF	REF	REF	
				(Main fuel injector) (Tap CFT2) (J131)							
				(See figure 32, index 92, for REQMT)							
-125	8	NA5-27441		TRANSDUCER, Temperature, resistance type	REF	REF	REF	REF	REF	REF	
				(Fuel injection temperature sensor) (Installed on engines not incorporating MD262 change)							
				(Tap CFT2a) (J22) (See figure 32, index 91B, for REQMT)							
(a) For interchangeability status, refer to the Component Interchangeability List.											

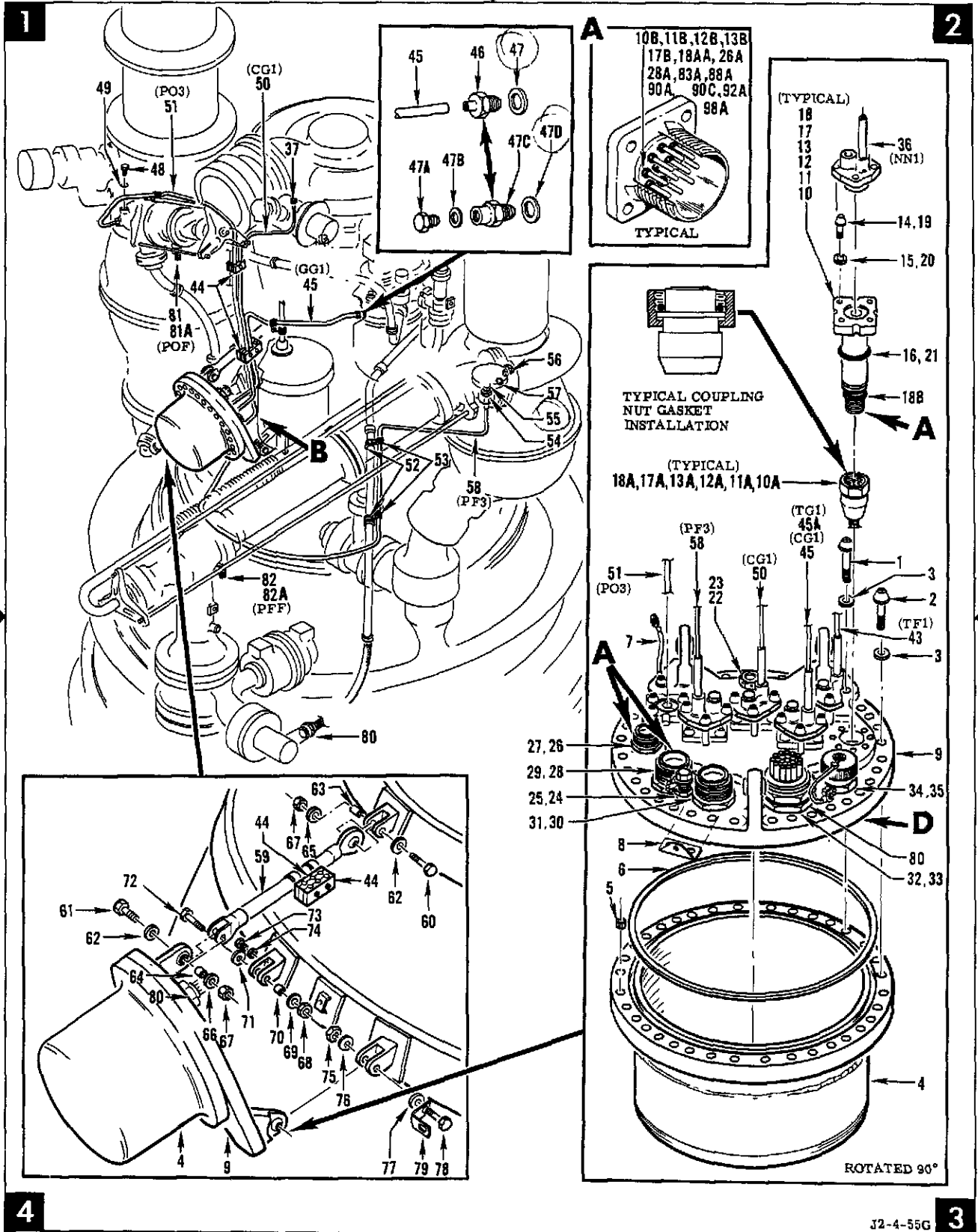


Figure 32. Flight Instrumentation and Primary Package Assembly (Sheet 1 of 3)



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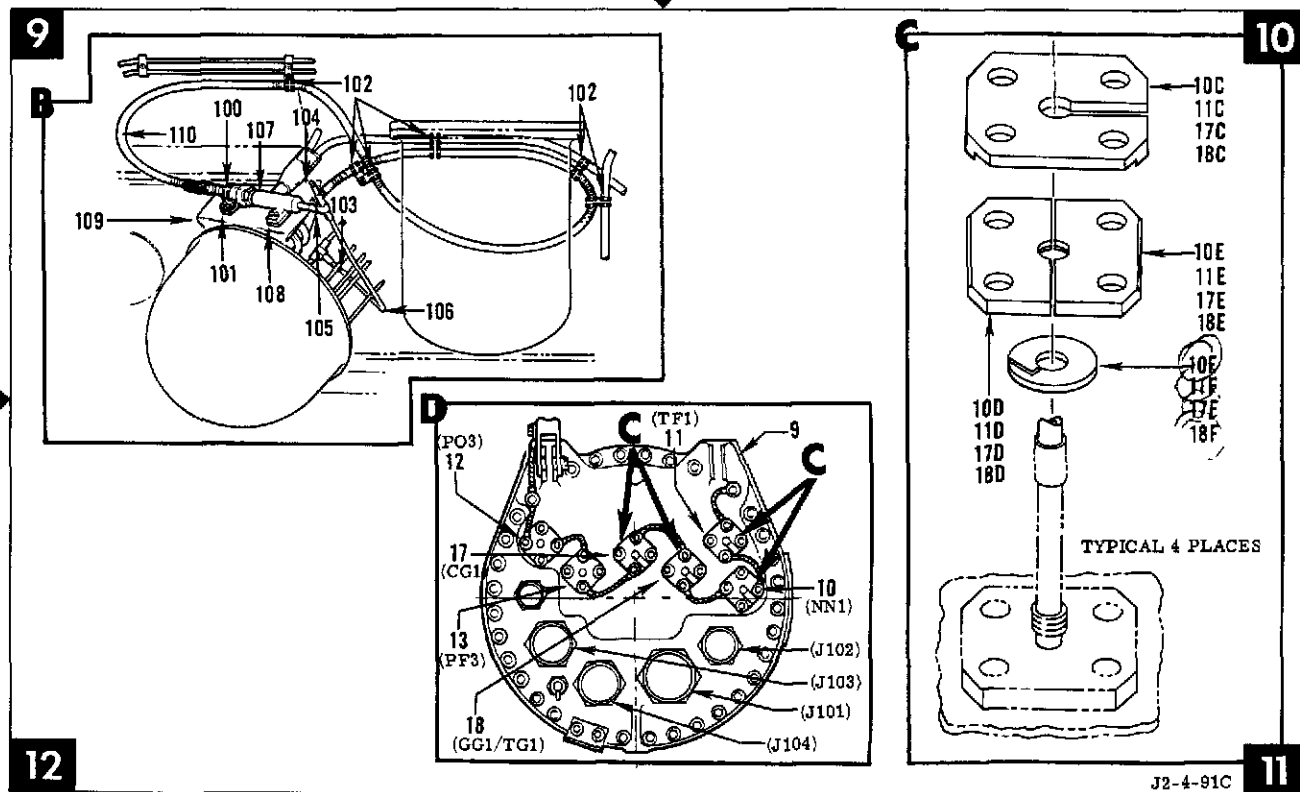


Figure 32. Flight Instrumentation and Primary Package Assembly (Sheet 3 of 3)

FIG & INDEX NO.	ZONE NO	PART NUMBER	DESCRIPTION							UNITS PER ASSY					USABLE ON CODE
			1	2	3	4	5	6	7	REF	REF	REF	REF	REF	
32-			FLIGHT INSTRUMENTATION AND PRIMARY PACKAGE ASSEMBLY												
			FLIGHT INSTRUMENTATION INSTL (See figure 1) . . .							REF	REF	REF	REF	REF	
			702527	.	.	.	.	.	.	1					ESB
			703685	.	.	.	.	.	.		1				ERB
			703685-11	.	.	.	.	.	.			1			GDL
		(a)	704095	.	.	.	.	.	.				1		HDE
			704095-21	.	.	.	.	.	.				1		PDC
			704095-51	.	.	.	.	.	.				1	1	MYB
			704095-31	.	.	.	.	.	.					1	PGA
			704095-81	.	.	.	.	.	.					1	QRB
			704095-121	.	.	.	.	.	.					1	
			(Engines not incorporating MD376 change)												
			(Engines incorporating MD376 change)												
			PARTIAL BREAKDOWN FOLLOWS												
	- 1	2	RD111-3006-4216	.	.	.	.	.	.	4	4	4	4	4	
	- 2	2	RD111-3008-3415	.	.	.	.	.	.	28	28	28	28	28	
	- 3	2,3	LD153-0013-0002	.	.	.	.	.	.	28	28	28	28	28	
	- 4	3,4	702605	.	.	.	.	.	.	1	1	1	1	1	
			primary, integrated (Pneumatic accumulator)												
	- 5	3	1191-4CNVX375	.	.	.	.	.	.	34	34	34	34	34	
	- 6	3	MS9021-276	.	.	.	.	.	.	1	1	1	1	1	
- 7	3	MS25083-2BC4	.	.	.	.	.	.	1	1	1	1	1		
		702642	.	.	.	.	.	.	1	1	1	1	1		
		RD171-1042-0001	.	.	.	.	.	.	1	1	1	1	1		
- 8	3	502849	.	.	.	.	.	.	1	1	1	1	1		
		flight package													
		RD111-3008-3415	.	.	.	.	.	.	2	2	2	2	2		
		BOLT (AP)													
(a) For interchangeability status, refer to the Component Interchangeability List.															

(a) For interchangeability status, refer to the Component Interchangeability List.

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FIG. & INDEX NO.	ZONE NO.	PART NUMBER	DESCRIPTION							UNITS PER ASSY.	USABLE ON CODE
			1	2	3	4	5	6	7		
32- 9	3, 4, 11	703884	.	.	.	PLATE ASSY, Flight instrumentation	.	.	.	1	
- 9	3, 4, 11	703884-11	.	.	.	package, primary	.	.	.	1	
- 9	3, 4, 11	704094	.	.	.	PLATE ASSY, Flight instrumentation	.	.	.	1	
- 9	3, 4, 11	704094-21	.	.	.	package, primary	.	.	.		HDE
- 9	3, 4, 11	704094-51	.	.	.	PLATE ASSY, Flight instrumentation	.	.	.	1	PDC
- 9	3, 4, 11	704094-31	.	.	.	package, primary (NHA 704095-51)	.	.	.		MYB
- 9	3, 4, 11	704094-81	.	.	.	PLATE ASSY, Flight instrumentation	.	.	.	1	PGA
- 9	3, 4, 11	704094-121	.	.	.	package, primary (NHA 704095-81)	.	.	.		
			.	.	.	(Engines not incorporating MD376 change)	.	.	.	1	QRB
			.	.	.	PLATE ASSY, Flight instrumentation	.	.	.		
			.	.	.	package, primary (NHA 704095-121)	.	.	.		
			.	.	.	(Engines incorporating MD376 change)	.	.	.		
-10	2, 11	NA5-27412T35T (a)	.	.	.	PARTIAL BREAKDOWN FOLLOWS	.	.	.		
-10A	2	703877	.	.	.	TRANSDUCER, Absolute pressure,	.	.	.	1	
			.	.	.	DC-DC type (Helium tank) (Tap NN1)	.	.	.	1	
			.	.	.	(Alternate NA5-27440T35T) (J139)	.	.	.	1	
			.	.	.	PLUG ASSY, Straight, 14S-6S shell size	.	.	.	1	
			.	.	.	(Helium tank) (J139)	.	.	.	1	
-10B	2	RD111-3006-4216	.	.	.	BOLT (AP)	.	.	.	4	
-10C	10	LD153-0013-0002	.	.	.	WASHER (AP)	.	.	.	4	
-10D	10	RD421-5001-0016	.	.	.	INSULATOR (NHA 704094-31)	.	.	.	6	
		703845 (b)	.	.	.	PLATE, Compression, transducer seal	.	.	.	1	
		703844-3 (b)	.	.	.	PLATE, Retainer, transducer seal (Matched	.	.	.	1	
			.	.	.	set)	.	.	.	1	
-10E	10	703844-5 (b)	.	.	.	PLATE, Retainer, transducer seal (Matched	.	.	.	1	
			.	.	.	set)	.	.	.	1	
-10F	10	703846 (b)	.	.	.	SEAL, Transducer flange	.	.	.	1	
-11	2, 11	NA5-27412T15T (a)	.	.	.	TRANSDUCER, Absolute pressure,	.	.	.	1	
			.	.	.	DC-DC type (Start tank) (Tap TF1)	.	.	.	1	
			.	.	.	(Alternate NA5-27440T15T) (J140)	.	.	.	1	
-11A	2	703877	.	.	.	PLUG ASSY, Straight, 14S-6S shell size	.	.	.	1	
			.	.	.	(Start tank) (P140)	.	.	.	1	
			.	.	.	BOLT (AP)	.	.	.	4	
			.	.	.	WASHER (AP)	.	.	.	4	
-11B	2	RD421-5001-0016	.	.	.	INSULATOR (NHA 704094-31)	.	.	.	6	
-11C	10	703845 (b)	.	.	.	PLATE, Compression, transducer seal	.	.	.	1	
-11D	10	703844-3 (b)	.	.	.	PLATE, Retainer, transducer seal	.	.	.	1	
			.	.	.	(Matched set)	.	.	.	1	
-11E	10	703844-5 (b)	.	.	.	PLATE, Retainer, transducer seal	.	.	.	1	
			.	.	.	(Matched set)	.	.	.	1	
-11F	10	703846 (b)	.	.	.	SEAL, Transducer flange	.	.	.	1	
-12	12	NA5-27412T15T (a)	.	.	.	TRANSDUCER, Absolute pressure,	.	.	.	1	
			.	.	.	DC-DC type (LOX pump discharge) (Tap	.	.	.		
			.	.	.	PO3) (Alternate NA5-27440T15T) (J136)	.	.	.		
-12	12	NA5-27412T20T (a)	.	.	.	TRANSDUCER, Absolute pressure,	.	.	.	1	
			.	.	.	DC-DC type (LOX pump discharge) (Tap	.	.	.		
			.	.	.	PO3) (Alternate NA5-27440T20T) (J136)	.	.	.		
-12A	2	703877	.	.	.	PLUG ASSY, Straight, 14S-6S shell size	.	.	.	1	
			.	.	.	(LOX pump discharge) (P136)	.	.	.	1	
-12B	2	RD421-5001-0016	.	.	.	INSULATOR (NHA 704094-31)	.	.	.	6	
-13	12	NA5-27412T15T (a)	.	.	.	TRANSDUCER, Absolute pressure, DC-DC	.	.	.	1	
			.	.	.	type (Fuel pump discharge) (Tap PF3)	.	.	.	1	
			.	.	.	(Alternate NA5-27440T15T) (J135)	.	.	.	1	
-13A	2	703877	.	.	.	PLUG ASSY, Straight, 14S-6S shell size	.	.	.	1	
			.	.	.	(Fuel pump discharge) (P135)	.	.	.	1	
-13B	2	RD421-5001-0016	.	.	.	INSULATOR (NHA 704094-31)	.	.	.	6	
		MS25083-2CC2	.	.	.	JUMPER ASSY	.	.	.	4	

(a) For interchangeability status, refer to the Component Interchangeability List.

(b) Not required with Type NA5-27412TXX transducers manufactured by Consolidated Electrodynamics Corp or Type NA5-27440 transducers.

FIG. & INDEX NO.	ZONE NO.	PART NUMBER	DESCRIPTION							UNITS PER ASSY					USABLE ON CODE
			1	2	3	4	5	6	7						
32-14	2	RD111-3006-4223	.	.	.	.	.	.	BOLT (AP)	4	4	4	4	4	
-15	2	AS30	.	.	.	.	.	.	WASHER (MFD by 10630) (AP)	4	4	4	4	4	
-16	2	MS29513-021	.	.	.	.	.	.	PACKING	4	4	4	4	4	
-17	2, 12	NA5-27412T10T (a)	.	.	.	.	.	.	TRANSDUCER, Absolute pressure, ...	1	1	1	1	1	
									DC-DC type (Thrust chamber) (Tap CG1) (Alternate NA5-27440T10T) (J137)						
-17A	2	703677	.	.	.	.	.	.	PLUG ASSY, Straight, 14S-6S shell size	1	1	1	1	1	
									(Thrust chamber) (P137)						
		RD111-3006-4216	.	.	.	.	.	.	BOLT (AP)	4	4	4	4	4	
		LD153-0013-0002	.	.	.	.	.	.	WASHER (AP)	4	4	4	4	4	
-17B	2	RD421-5001-0016	.	.	.	.	.	.	INSULATOR (NHA 704094-31)	6	6	6	6	6	
-17C	10	703845	(b)	.	.	.	.	.	PLATE, Compression, transducer seal	1	1	1	1	1	
-17D	10	703844-3	(b)	.	.	.	.	.	PLATE, Retainer, transducer seal	1	1	1	1	1	
									(Matched set)						
-17E	10	703844-5	(b)	.	.	.	.	.	PLATE, Retainer, transducer seal	1	1	1	1	1	
									(Matched set)						
-17F	10	703846	(b)	.	.	.	.	.	SEAL, Transducer flange	1	1	1	1	1	
-18	2, 11	NA5-27412T10T (a)	.	.	.	.	.	.	TRANSDUCER, Absolute pressure, ...	1	1	1	1	1	
									DC-DC type (GG chamber) (Tap GG1) (Alternate NA5-27440T10T) (J138)						
-18A	2	703677	.	.	.	.	.	.	PLUG ASSY, Straight, 14S-6S shell size	1	1	1	1	1	
									(GG chamber) (P138)						
		RD111-3006-4216	.	.	.	.	.	.	BOLT (AP)	4	4	4	4	4	
		LD153-0013-0002	.	.	.	.	.	.	WASHER (AP)	4	4	4	4	4	
-18AA	2	RD421-5001-0016	.	.	.	.	.	.	INSULATOR (NHA 704094-31)	6	6	6	6	6	
-18B	2	RD261-2006-0014	.	.	.	.	.	.	GASKET	6	6	6	6	6	
-18C	10	703845	(b)	.	.	.	.	.	PLATE, Compression, transducer seal	1	1	1	1	1	
-18D	10	703844-3	(b)	.	.	.	.	.	PLATE, Retainer, transducer seal	1	1	1	1	1	
									(Matched set)						
-18E	10	703844-5	(b)	.	.	.	.	.	PLATE, Retainer, transducer seal	1	1	1	1	1	
									(Matched set)						
-18F	10	703846	(b)	.	.	.	.	.	SEAL, Transducer flange	1	1	1	1	1	
		MS25083-2CC3	.	.	.	.	.	.	JUMPER ASSY	3	3	3	3	3	
-19	2	RD111-3006-4223	.	.	.	.	.	.	BOLT (AP)	4	4	4	4	4	
-20	2	AS30	.	.	.	.	.	.	WASHER (MFD by 10630) (AP)	4	4	4	4	4	
-21	2	MS29513-021	.	.	.	.	.	.	PACKING	2	2	2	2	2	
-22	3	AN814-5DL	.	.	.	.	.	.	PLUG AND BLEEDER	1	1	1	1	1	
-23	3	MS29512-05	.	.	.	.	.	.	PACKING	1	1	1	1	1	
-24	3	558272-41	.	.	.	.	.	.	VALVE ASSY, Air filler (Pressurizing valve)	1	1	1	1	1	QRB
									(Altered from RD284-1001-0002) (Replaces 558272-31) (See figure 7 for partial breakdown)						
-25	3	MS29513-014	.	.	.	.	.	.	PACKING	1	1	1	1	1	
-26	3	19-702996-1	.	.	.	.	.	.	RECEPTACLE ASSY, Jamnut, glass sealed, ...	1	1	1	1	1	
									18-1P shell size (J100)						
-26A	2	RD421-5001-0016	.	.	.	.	.	.	INSULATOR	1	1	1	1	1	
-27	3	MS29513-123	.	.	.	.	.	.	PACKING	1	1	1	1	1	
-28	3	19-702996-17	.	.	.	.	.	.	RECEPTACLE ASSY, Jamnut, glass sealed, ...	1	1	1	1	1	
									28-21P shell size (J103)						
-28A	2	RD421-5001-0016	.	.	.	.	.	.	INSULATOR	21	21	21	21	21	
-29	3	MS29513-133	.	.	.	.	.	.	PACKING	1	1	1	1	1	
-30	3	19-702996-18	.	.	.	.	.	.	RECEPTACLE ASSY, Jamnut, glass sealed, ...	1	1	1	1	1	
									28-21S shell size (J104)						
-31	3	MS29513-133	.	.	.	.	.	.	PACKING	1	1	1	1	1	
-32	3	19-702996-26	.	.	.	.	.	.	RECEPTACLE ASSY, Jamnut, glass sealed, ...	1	1	1	1	1	
									36-10S shell size (J101)						
-33	3	MS29513-141	.	.	.	.	.	.	PACKING	1	1	1	1	1	
-34	3	19-702996-10	.	.	.	.	.	.	RECEPTACLE ASSY, Jamnut, glass sealed, ...	1	1	1	1	1	
									22-14S shell size (J102)						
-35	3	MS29513-127	.	.	.	.	.	.	PACKING	1	1	1	1	1	
-36	2	703706	.	.	.	.	.	.	TUBE ASSY, Upstream stage instrumentation NN1	1	1	1	1	1	
		RD172-0012-0001	.	.	.	.	.	.	TAPE (PNEUMATIC)	AR	AR	AR	AR	AR	
		RD172-0014-0018	.	.	.	.	.	.	TAPE (HELIUM)	AR	AR	AR	AR	AR	
		RD172-0018-3000	.	.	.	.	.	.	TAPE (3000 PSI)	AR	AR	AR	AR	AR	
		703706-3	.	.	.	.	.	.	TUBE, 321 CRES, 1/4 IN. OD by 0.028	1	1	1	1	1	
									gage by 31.00 IN. LG						
		703096	.	.	.	.	.	.	TEE, Instrumentation system (556120 tee may	1	1	1	1	1	
									be installed)						
-37	1, 6	702528	.	.	.	.	.	.	ADAPTER, Flight instrumentation, boss to tube	3	3	3	3	3	
-38	1, 6	404659	.	.	.	.	.	.	SEAL, Pressure-actuated	1	1	1	1	1	JP
-38	1, 6	408767	(a)	.	.	.	.	.	SEAL, Pressure-actuated, cryogenic						JYA
-39	1, 6	RD273-1020-1002	.	.	.	.	.	.	PLUG AND BLEEDER	1	1	1	1	1	
-40	1, 6	RD261-6001-0001	.	.	.	.	.	.	GASKET	1	1	1	1	1	
-41		DELETED													
-42		DELETED													
		RE127-2001-0002	.	.	.	.	.	.	CLAMP			1	1	1	
									(a) For interchangeability status, refer to the Component Interchangeability List.						
									(b) Not required with Type NA5-27412TXXT transducers manufactured by Consolidated Electronics Corp or Type NA5-27440 transducers.						

Section II
Flight Instrumentation System

R-3825-4

FIG. & INDEX NO.	ZONE NO.	PART NUMBER	DESCRIPTION							UNITS PER ASSY.					USABLE ON CODE
			1	2	3	4	5	6	7						
32-		RE127-2005-0016	.	.	.	CLAMP	.	.	.	1		1	1		
		RE127-2001-0006	.	.	.	CLAMP	.	.	.	1		1	1		
		NAS1101C3-20	.	.	.	SCREW (AP)	.	.	.	1		1	1		
		NAS43DD3-48	.	.	.	SPACER (AP)	.	.	.	1		1	1		
		NAS679C3W	.	.	.	NUT (AP)	.	.	.	1		1	1		
-43	6	703709	.	.	.	TUBE ASSY, Downstream stage instrumentation TFI	.	.	.	1	1	1	1	1	
		RD172-0002-0001	.	.	.	TAPE (ROCKET FUEL)	.	.	.	AR	AR	AR	AR	AR	
		703709-3	.	.	.	TUBE, 321 CRES, 1/4 IN. OD by 0.028	.	.	.	1	1	1	1	1	
			.	.	.	gage by 8.00 IN. LG	.	.	.						
		703096	.	.	.	TEE, Instrumentation system (tee 556120) may	.	.	.	1	1	1	1	1	
			.	.	.	be installed)	.	.	.						
-44	1,4	RD127-1001-0003	.	.	.	CLAMP	.	.	.	4	4	4	4	4	
		RD127-1001-0002	.	.	.	CLAMP	.	.	.	4	4	4	4	4	
		NAS1101C3-16	.	.	.	SCREW (AP)	.	.	.	1	1	1	1	1	
		NAS1101C3-26	.	.	.	SCREW (AP)	.	.	.	1	1	1	1	1	
		RD153-1002-0003	.	.	.	WASHER (AP)	.	.	.	1	1	1	1	1	
		NAS43DD1-40	.	.	.	SPACER (AP)	.	.	.	1	1	1	1	1	
		NAS679C3W	.	.	.	NUT (AP)	.	.	.	1	1	1	1	1	
-45	1,2	703876	.	.	.	TUBE ASSY, Gas generator chamber pressure	.	.	.	1	1	1	1	1	VL
			.	.	.	flight instrumentation (Tap GG1)	.	.	.						
-45A	1	704397	.	.	.	TUBE ASSY, TG1 Flight instrumentation, port to tee	.	.	.				1	1	JWA
		RD172-0014-0006	.	.	.	TAPE (COMBUSTION GAS)	.	.	.	AR	AR	AR	AR	AR	
		RD172-0018-0650	.	.	.	TAPE (650 PSI)	.	.	.	AR	AR	AR	AR	AR	
		703876-3	.	.	.	TUBE, 321 CRES, 1/4 IN. OD by 0.028	.	.	.	1	1	1	1	1	
			.	.	.	gage by 32.00 IN. LG	.	.	.						
		704397-3	.	.	.	TUBE, 321 CRES, 1/4 IN. OD by 0.028	.	.	.				1	1	
			.	.	.	gage by 72.00 IN. LG	.	.	.						
-46	1	703966	.	.	.	ADAPTER, Flight instrumentation, boss to tube	.	.	.	1	1	1	1	1	
47	1	406346	.	.	.	SEAL, Pressure-actuated, hot-gas	.	.	.	1	1	1	1	1	JP
47A	1	408799	.	.	.	SEAL, Pressure-actuated, hot-gas	.	.	.				1	1	JYA
		RD273-1020-1002	.	.	.	PLUG AND BLEEDER (May be used for spares	.	.	.				1	1	
			.	.	.	on engines J-2140 THRU J-2152)	.	.	.						
-47B		RD261-6001-0001	.	.	.	GASKET (May be used for spares on engines	.	.	.				1	1	
			.	.	.	J-2140 THRU J-2152)	.	.	.						
-47C		RD265-3009-0002	.	.	.	PLUG (May be used for spares on engines J-2140	.	.	.				1	1	
			.	.	.	THRU J-2152)	.	.	.						
47D		408799	.	.	.	SEAL, Pressure-actuated, hot-gas	.	.	.				1	1	
-48	1,8	RD273-1020-1002	.	.	.	PLUG AND BLEEDER	.	.	.	1	1	1	1	1	
-49	1,8	RD261-6001-0001	.	.	.	GASKET	.	.	.	1	1	1	1	1	
-50	2	703704	.	.	.	TUBE ASSY, Upstream stage instrumentation CGI	.	.	.	1	1	1	1	1	
		RD172-0014-0006	.	.	.	TAPE (COMBUSTION GAS)	.	.	.	AR	AR	AR	AR	AR	
		RD172-0018-0700	.	.	.	TAPE (700 PSI)	.	.	.	AR	AR	AR	AR	AR	
		703704-3	.	.	.	TUBE, 321 CRES, 1/4 IN. OD by 0.028	.	.	.	1	1	1	1	1	
			.	.	.	gage by 35.62 IN. LG	.	.	.						
		703096	.	.	.	TEE, Instrumentation system (556120 tee may	.	.	.	1	1	1	1	1	
			.	.	.	be installed)	.	.	.						
-51	2	703883	.	.	.	TUBE ASSY, Oxidizer pump discharge pressure	.	.	.	1	1	1	1	1	VL
			.	.	.	flight instrumentation	.	.	.						
-51	2	704399	.	.	.	TUBE ASSY, PO3 Flight instrumentation, port to tee	.	.	.				1	1	JWA
-51	2	704400	.	.	.	TUBE ASSY, PO3 Flight instrumentation, tee to	.	.	.				1	1	JWA
			.	.	.	transducer	.	.	.						
		RD172-0001-0001	.	.	.	TAPE (ROCKET OXIDIZER)	.	.	.	AR	AR	AR	AR	AR	
		RD172-0014-0027	.	.	.	TAPE (LIQUID OXYGEN)	.	.	.	AR	AR	AR	AR	AR	
		RD172-0018-1250	.	.	.	TAPE (1250 PSI)	.	.	.	AR	AR	AR	AR	AR	
		703833-3	.	.	.	TUBE, 321 CRES, 1/4 IN. OD by 0.028	.	.	.	1	1	1	1	1	
			.	.	.	gage by 46.38 IN. LG	.	.	.						
		704399-3	.	.	.	TUBE, 321 CRES, 1/4 IN. OD by 0.028	.	.	.				1	1	
			.	.	.	gage by 50.00 IN. LG	.	.	.						
		704400-3	.	.	.	TUBE, 321 CRES, 1/4 IN. OD by 0.028	.	.	.				1	1	
			.	.	.	gage by 50.00 IN. LG	.	.	.						
-52	1	RE127-2001-0002	.	.	.	CLAMP	.	.	.	2	2	2	2	2	
-53	1	RE127-2001-0006	.	.	.	CLAMP	.	.	.	2	2	2	2	2	
		NAS1101C3-8	.	.	.	SCREW (AP)	.	.	.	1	1	1	1	1	
		LD153-0013-0001	.	.	.	WASHER (AP)	.	.	.	1	1	1	1	1	
		NAS679C3W	.	.	.	NUT (AP)	.	.	.	1	1	1	1	1	
-54	2	702528	.	.	.	ADAPTER, Flight instrumentation, boss to tube	.	.	.	1	1	1	1	1	
55	2	404659	.	.	.	SEAL, Pressure-actuated	.	.	.	1	1	1	1	1	JP
55	2	408767	.	.	.	SEAL, Pressure-actuated, cryogenic	.	.	.				1	1	JYA
-56	2	RD273-1020-1002	.	.	.	PLUG AND BLEEDER	.	.	.	1	1	1	1	1	
-57	2	RD261-6001-0001	.	.	.	GASKET	.	.	.	1	1	1	1	1	
-58	1,2	703884	.	.	.	TUBE ASSY, Fuel pump discharge pressure	.	.	.	1	1	1	1	1	
			.	.	.	flight instrumentation	.	.	.						
		RD172-0002-0001	.	.	.	TAPE (ROCKET FUEL)	.	.	.	AR	AR	AR	AR	AR	
		RD172-0014-0026	.	.	.	TAPE (LIQUID HYDROGEN)	.	.	.	AR	AR	AR	AR	AR	
		RD172-0018-1250	.	.	.	TAPE (1250 PSI)	.	.	.	AR	AR	AR	AR	AR	
		703884-3	.	.	.	TUBE, 321 CRES, 1/4 IN. OD by 0.028	.	.	.	1	1	1	1	1	
			.	.	.	gage by 38.75 IN. LG	.	.	.						

(a) For interchangeability status, refer to the Component Interchangeability List.

FIG & INDEX NO	ZONE NO	PART NUMBER	DESCRIPTION	UNITS PER ASSY					USABLE ON CODE
				1	2	3	4	5	
32-59	4	702532	STRUT ASSY, Primary instrumentation package support (Welded)	1					
-59	4	702532-21	STRUT ASSY, Primary instrumentation package support (Welded)	1	1	1	1	1	
-60	4	NAS1005-18A	BOLT (AP)	1	1	1	1	1	
-61	4	NAS1005-13A	BOLT (AP)	1	1	1	1	1	
-62	4	LD153-0013-0003	WASHER (AP)	2	2	2	2	2	
-63	4	NAS43DD5-10	SPACER (AP)	1	1	1	1	1	
-64	4	NAS43DD5-17	SPACER (AP)	1	1	1	1	1	
-65	4	LD153-0010-0012	WASHER (AP)	1	1	1	1	1	
-66	4	LD153-0010-0011	WASHER (AP)	1	1	1	1	1	
-67	4	NAS679C5	NUT (AP)	1	1	1	1	1	
		KSBY5SSD5	BEARING (MFD by 97613)	1					
		RE131-5001-0002	BEARING	1	1	1	1	1	
-68	4	NAS679C5	NUT	1	1	1	1	1	
-69	4	LD153-0010-0011	WASHER	1	1	1	1	1	
-70	4	NAS43DD5-9	SPACER	1	1	1	1	1	
-71	4	LD153-0013-0003	WASHER	1	1	1	1	1	
-72	4	NAS1005-19A	BOLT	1	1	1	1	1	
-73	4	RD111-1011-3306	BOLT	1	1	1	1	1	
-74	4	LD153-0013-0001	WASHER	1	1	1	1	1	
-75	4	NAS679C5	NUT	1	1	1	1	1	
-76	4	LD153-0010-0012	WASHER	1	1	1	1	1	
-77	4	LD153-0013-0003	WASHER	1	1	1	1	1	
-78	4	NAS1005-16A	BOLT	1	1	1	1	1	
-79	4	MS9103-14	BRACKET	1	1	1	1	1	
-80	3, 4	702626	ARMORED HARNESS ASSY, Flexible, position indicator to P101	1					FZB
-80	3, 4	702626-11	ARMORED HARNESS ASSY, Flexible, position indicator to P101	1	1				FRB
		501740-211	RECEPTACLE ASSY, Electrical 18-1P shell size (Altered from RD414-1010-0026) (J25)	1	1	1			
-81	1	NA5-27331	MAGNETIC PICKUP, J-2 flight flowmeters, ... dual coil (Oxidizer flowmeter) (NHA 410373 and all dash numbers and 702527) (Tap PFO) (J111) (Engines not incorporating MD364 change)	1	1	1	1	1	
-81	1	704634	MAGNETIC PICKUP ASSY, Flowmeter dual coil (Oxidizer flowmeter) (NHA 410373 and all dash numbers and 702527) (Tap PFO) (J111)	1	1	1	1	1	QDB
-81A	1	704629-3	TAG, Identification, wraparound	1	1	1	1	1	QDB
		502833-25	BRACKET, Harness support	1	1	1	1	1	
-82	1	NA5-27331	MAGNETIC PICKUP, J-2 flight flowmeters, dual . . . coil (Fuel flowmeter) (NHA 410372 and all dash numbers and 702527) (Tap PFF) (J110) (On engines not incorporating MD364 change)	1	1	1	1	1	
-82	1	704634	MAGNETIC PICKUP ASSY, Flowmeter dual coil (Fuel flowmeter) (NHA 410372 and all dash numbers and 702527) (Tap PFF) (J110)	1	1	1	1	1	QDB
-82A	1	704629-3	TAG, Identification wraparound	1	1	1	1	1	QDB
		RD111-1009-3411	BOLT (AP)	4	4	4	4	4	
		RD191-4002-1005	LUG (AP)	1	1	1	1	1	
		LD153-0013-0002	WASHER (AP)	4	4	4	4	4	
-83	7	NA5-27215T5 (a)	TRANSDUCER, Temperature, resistance type (Start tank) (Tap TFT1) (J123)	1	1	1	1	1	
		RD111-1009-3413	BOLT (AP)	4	4	4	4	4	
		RD191-4002-1005	LUG (AP)	1	1	1	1	1	
		RD153-5003-0004	WASHER (AP)	4	4	4	4	4	
-83A	2	RD421-5001-0016	INSULATOR (NHA 103850)	6	6	6	6	6	
-84	7	404666-7	SEAL, Pressure-actuated, spacer type, square flange	1	1	1	1	1	JP
-84	7	459721	SEAL, Pressure-actuated, instrumentation, hot-gas	1	1	1	1	1	JYA
-85	8	RD273-1020-1002	PLUG AND BLEEDER	2	2	2	2	2	
-86	8	RD261-8001-0001	GASKET	2	2	2	2	2	
-87	5	702538	BRACKET, Electrical connector temporary pad flight instrumentation	1	1	1	1	1	
		NAS1101C4-10	SCREW (AP)	2	2	2	2	2	
		LD153-0010-0009	WASHER (AP)	2	2	2	2	2	
-87A	5	NA5-27321T2 (a)	TRANSDUCER, Temperature resistance-type, ... surface temperature measurement (Thrust chamber jacket) (Tap CS1a) (J130)	1	1	1	1	1	
-88	5	NA5-27321T2 (a)	TRANSDUCER, Temperature, resistance-type, ... surface temperature measurement (Thrust chamber jacket) (Tap CS1) (J129)	1	1	1	1	1	
		NAS1003-4H	BOLT (AP)	4	4	4	4	4	
		NAS1101C04-7	SCREW (AP)	4	4	4	4	4	
		LD153-0010-0001	WASHER (AP)	4	4	4	4	4	
		RD191-4002-1001	LUG (AP)	1	1	1	1	1	
		NAS679C04W	NUT (AP)	4	4	4	4	4	

(a) For interchangeability status, refer to the Component Interchangeability List.

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Flight Instrumentation System

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FIG. & INDEX NO.	ZONE NO.	PART NUMBER	DESCRIPTION							UNITS PER ASSY.					USABLE ON CODE
			1	2	3	4	5	6	7						
32-88A -89	2 8	RD421-5001-0016 702538	.	.	.	INSULATOR (NHA 103850)	3	3	3	3	3				
			.	.	.	BRACKET, Electrical connector temporary	1	1	1	1	1				
		NAS1101C4-10	.	.	.	pad, flight instrumentation									
		LD153-0013-0001	.	.	.	SCREW (AP)	2	2	2	2	2				
		LD153-0010-0009	.	.	.	WASHER (AP)	4	4	4	4	4				
-89A	5	NA5-27215T5 (a)	.	.	.	WASHER (AP)	2	2	2	2	2				
-89B	5	NA5-27215T5 (a)	.	.	.	TRANSDUCER, Temperature, resistance type	1	1							
-89C	5, 6, 8	NA5-27215T5 (a)	.	.	.	(Fuel pump discharge) (Tap PFT1) (J124)									
-90	8	NA5-27215T5 (a)	.	.	.	TRANSDUCER, Temperature, resistance type	1	1							
-90A	2	RD421-5001-0016	.	.	.	(LOX pump discharge) (Tap POT3) (J125)									
-90B	6	NA5-27215T3 (a)	.	.	.	TRANSDUCER, Temperature, resistance type	1	1							
-90C	2	RD421-5001-0016	.	.	.	(Fuel bleed valve) (Tap GFT1) (J158)									
-91	5, 6, 7, 8	404866-7	.	.	.	TRANSDUCER, Temperature, resistance type	1	1							
-91	5, 6, 7, 8	459721 (a)	.	.	.	(LOX bleed valve) (Tap GOT2) (J159)									
-91A	7	502848	.	.	.	INSULATOR (NHA 103850)	3	3	3	3	3				
		RD111-1009-3412	.	.	.	TRANSDUCER, Temperature, resistance type	1	1	1	1	1				
		RD111-1009-3411	.	.	.	(Helium tank) (Tap NNT1) (J122)									
		RD111-1011-0414	.	.	.	INSULATOR (NHA 103850)	3	3	3	3	3				
		MS9102-51	.	.	.	SEAL, Pressure-actuated, spacer type, square flange	5	5	5	5	5				JP
		RD191-4002-1005	.	.	.	SEAL, Pressure-actuated, instrumentation, hot gas . .									JYA
		LD153-0013-0001	.	.	.	BRACKET ASSY, Harness support, temperature	1	1	1	1	1				VM
		502835	.	.	.	flange, thrust chamber (Welded)									
		502833-13	.	.	.	BOLT (AP)	4	4	4	4	4				
-91B	7	NA5-27441	.	.	.	BOLT (AP)	3	3	3	3	3				
			.	.	.	BOLT (AP)	1	1	1	1	1				
			.	.	.	BOLT (AP)	1	1	1	1	1				
			.	.	.	BRACKET (AP)	1	1	1	1	1				
			.	.	.	LUG (AP)	1	1	1	1	1				
			.	.	.	WASHER (AP)	4	4	4	4	4				
			.	.	.	BRACKET, Harness support, LOX and fuel	2	2	2	2	2				
			.	.	.	bleed valves									
			.	.	.	BRACKET, Harness support	1	1	1	1	1				
			.	.	.	TRANSDUCER, Temperature, resistance type	1	1	1	1	1				
			.	.	.	(Fuel injection temperature sensor) (Installed									
			.	.	.	on engines not incorporating MD262 change)									
			.	.	.	(Tap CFT2a) (J22)									
-92	7	NA5-27441	.	.	.	TRANSDUCER, Temperature resistance type	1	1	1	1	1				
			.	.	.	(Main fuel injector) (Tap CFT2) (J131)									
		RD111-1009-3417	.	.	.	BOLT (AP)	1	1	1	1	1				
		RD111-1010-3417	.	.	.	BOLT (AP)	1	1	1	1	1				
		RD111-1010-3419	.	.	.	BOLT (AP)	2	2	2	2	2				
		RD153-5003-0004	.	.	.	WASHER (AP)	4	4	4	4	4				
		LD153-0010-0009	.	.	.	WASHER (AP)	4	4	4	4	4				
		NAS879C4W	.	.	.	NUT (AP)	4	4	4	4	4				
-92A	2	RD421-5001-0016	.	.	.	INSULATOR (NHA 103850)	3	3	3	3	3				
-93	7	408795	.	.	.	SEAL, Pressure-actuated	2	2	2	2	2				
-93	7	459724-3 (a)	.	.	.	SEAL, Pressure-actuated, cryogenic									JP
-94	5, 6, 7	RD273-1020-1002	.	.	.	PLUG AND BLEEDER	5	5	5	5	5				JYA
-95	5, 6, 7	RD261-6001-0001	.	.	.	GASKET	5	5	5	5	5				
-96	6	NA5-27323T3	.	.	.	TRANSDUCER, Temperature, resistance-type	1	1	1	1	1				
			.	.	.	for hot-gas service (LOX turbine outlet)									
			.	.	.	(Also a component of 303926 and 410375)									
			.	.	.	(May be replaced by NA5-27323T6 for spares)									
			.	.	.	(Tap TGT4) (J128)									
-96	6	NA5-27323T6	.	.	.	TRANSDUCER, Temperature, resistance-type, ...	1	1	1	1	1				
			.	.	.	for hot-gas service (LOX turbine outlet)									
			.	.	.	(Installed on engines incorporating MD274 change)									
			.	.	.	(Alternate to NA5-27323T3) (Tap TGT4) (J128)									
-96A		DELETED													
-96B	6	704473	.	.	.	DUMMY ASSY, Temperature, transducer (Installed . .									
			.	.	.	on engines incorporating MD263 or MD355									
			.	.	.	change)									
		RD111-1009-3411	.	.	.	BOLT (AP)	4	4	4	4	4				
		RD191-4002-1005	.	.	.	LUG (AP)	1	1	1	1	1				
		LD153-0013-0002	.	.	.	WASHER (AP)	4	4	4	4	4				
		404681	.	.	.	SEAL, Pressure-actuated, instrumentation, hot-gas . .	1	1	1	1	1				JP
-97	6	459721 (a)	.	.	.	SEAL, Pressure-actuated, instrumentation, hot gas . .									JYA
-97	6	459721 (a)	.	.	.	TRANSDUCER, Temperature, resistance type	1	1	1	1	1				BRB
-98	7	NA5-27215T7 (a)	.	.	.	(Heat exchanger GOX outlet) (Tap HOT2) (J157)									
		RD111-1009-3411	.	.	.	BOLT (AP)	4	4	4	4	4				
		RD153-5003-0004	.	.	.	WASHER (AP)	4	4	4	4	4				
		RD191-4002-1005	.	.	.	LUG (AP)	1	1	1	1	1				
-98A	2	RD421-5001-0016	.	.	.	INSULATOR (NHA 103850)	6	6	6	6	6				
-99	7	404686-7	.	.	.	SEAL, Pressure-actuated, spacer type, square flange	1	1	1	1	1				JP
-99	7	459721 (a)	.	.	.	SEAL, Pressure-actuated, instrumentation, hot-gas . .									JYA
-100	9	RE127-2006-0014	.	.	.	CLAMP	2	2	2	2	2				MRE
		NAS1101C3-10	.	.	.	SCREW (AP)	2	2	2	2	2				
		RD153-1003-0006	.	.	.	WASHER (AP)	2	2	2	2	2				
		NAS879C3W	.	.	.	NUT (AP)	2	2	2	2	2				

(a) For interchangeability status, refer to the Component Interchangeability List

Flight Instrumentation System

FIG. & INDEX NO.	ZONE NO	PART NUMBER	DESCRIPTION							UNITS PER ASSY.				USABLE ON CODE
			1	2	3	4	5	6	7					
32-101	9	704741	. . .	. . .	SHIM, Transducer, connector end					1	1	1	1	MRB
-102	9	RE127-2005-0012	. . .	. . .	CLAMP					9	9	9	9	MRB
		MS9101-02	. . .	. . .	BRACKET					1	1	1	1	MRB
		NAS1101C3-6	. . .	. . .	SCREW (AP)					1	1	1	1	
		NAS679C3W	. . .	. . .	NUT (AP)					1	1	1	1	
-103	9	RD273-1023-0005	. . .	. . .	SLEEVE (RD273-1023-0002 sleeve may be installed) . .					1	1	1	1	MRB
-104	9	704386	. . .	. . .	PLUG, Instrumentation tube					1	1	1	1	
-105	9	704745	. . .	. . .	TEE ASSY, Instrumentation (Welded)					1	1	1	1	MRB
-106	9	704743-11	. . .	. . .	TUBE ASSY, Chamber pressure					1	1	1	1	MRB
		RD172-0014-0006	. . .	. . .	TAPE (COMBUSTION GAS)				AR	AR	AR	AR		
		RD172-0007-0001	. . .	. . .	TAPE (COMPRESSED GAS)				AR	AR	AR	AR		
		RD172-0018-0750	. . .	. . .	TAPE (750 PSI)				AR	AR	AR	AR		
		704743-5	. . .	. . .	TUBE, 321 CRES, 1/4 IN. OD by 0.028				1	1	1	1		
			gage by 24.00 IN. LG											
-107	9	PA534-30	. . .	. . .	TRANSDUCER (MFD by 57187)					1	1	1	1	MRB
		RD111-3004-0406	. . .	. . .	BOLT (AP)					4	4	4	4	
		AS30	. . .	. . .	WASHER (MFD by 10630) (AP)					8	8	8	8	
		NAS679C4W	. . .	. . .	NUT (AP)					4	4	4	4	
-108	9	704742	. . .	. . .	SHIM, Transducer, flange end					1	1	1	1	MRB
-109	9	704740	. . .	. . .	BRACKET ASSY, Transducer mount, primary					1	1	1	1	MRB
			package (Welded)											
		RD111-3008-3415	. . .	. . .	BOLT (AP)					4	4	4	4	
-110	9	703250	. . .	. . .	ARMORED CABLE ASSY, Flexible, fuel pump interstage . .				REF					
			pressure (See figure 28, index 36, for REQMT)											
-110	9	703250-11	. . .	. . .	ARMORED CABLE ASSY, Flexible, fuel pump interstage . .					REF				FRB
			pressure (See figure 28, index 36 for REQMT)											
-110	9	704487	. . .	. . .	ARMORED CABLE ASSY, Flexible, fuel pump interstage . .						REF			GSB
			pressure (See figure 28, index 36, for REQMT)											
-111	6	303428	. . .	. . .	COVER ASSY, Helium port, spin tank (Helium cover				REF					
			and helium fill-check valve) (Welded) (See figure 24, index 74, for REQMT)											
-111	6	303428-11	. . .	. . .	COVER ASSY, Helium port, spin tank (Helium cover					REF	REF	REF	REF	
			and helium fill-check valve) (Welded) (See figure 24, index 74, and figure 25, index 54, for REQMT)											
-112	6	557998-41	(a)	. . .	VALVE PACKAGE ASSY, Tank support and fill (Start				REF	REF	REF	REF	REF	
				. . .	tank support and fill valve) (See figure 25, index 32, for REQMT)									
(a) For interchangeability status, refer to the Component Interchangeability List.														

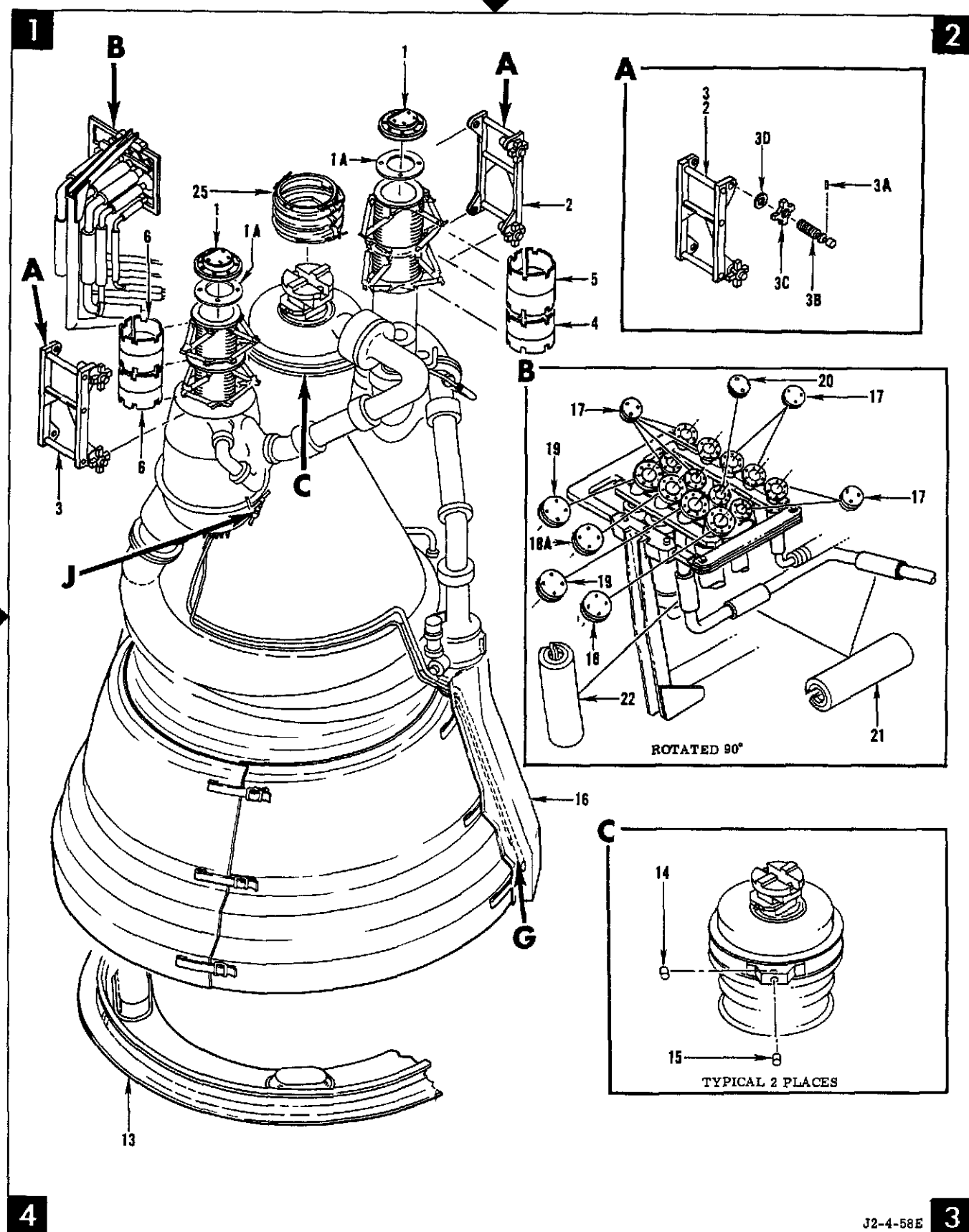


Figure 33. Engine Closures (Sheet 1 of 2)

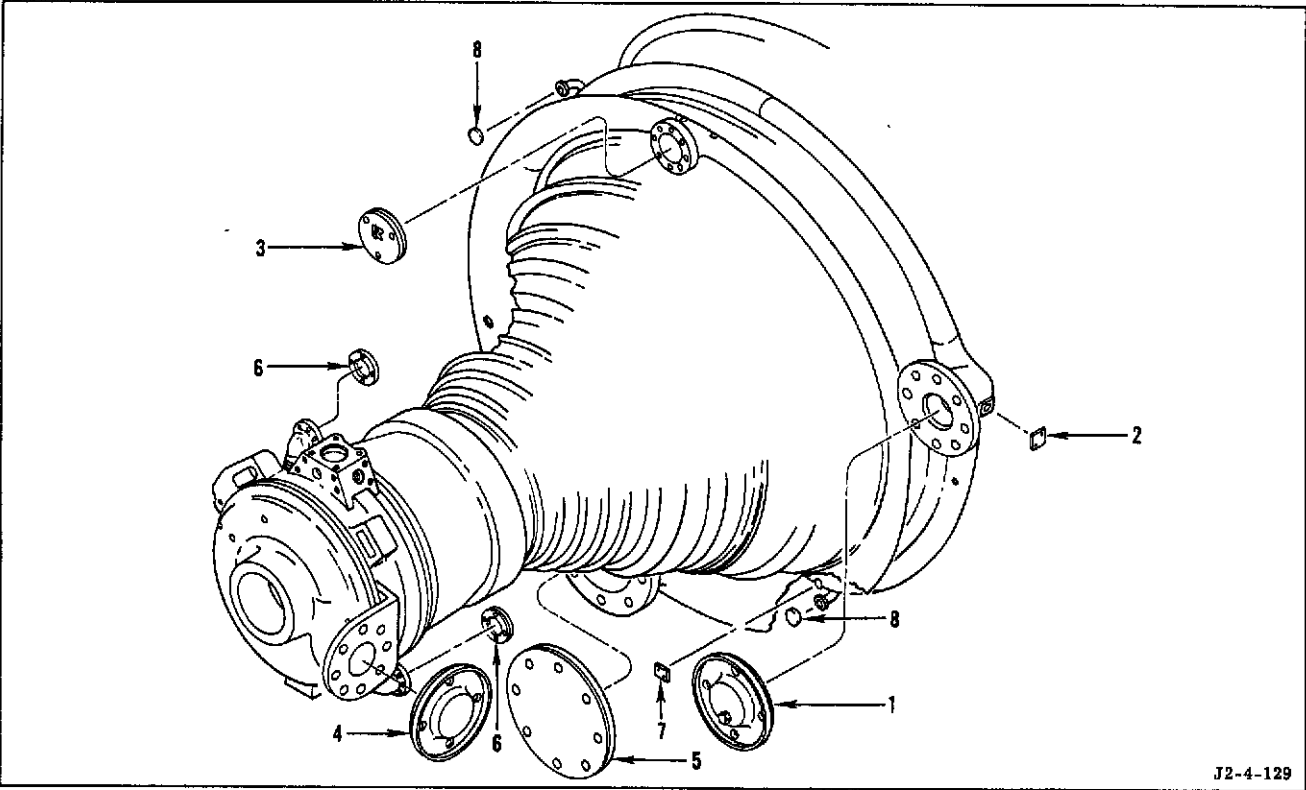


Section II
Engine Closures

R-3825-4

FIG & INDEX NO	ZONE NO	PART NUMBER	DESCRIPTION							UNITS PER ASSY.	USABLE ON CODE
			1	2	3	4	5	6	7		
33-		RK395-00001	ENGINE CLOSURE (Engines J-2046 THRU J-2074) (See figure 1)							NP	
		RK395-00001	ENGINE CLOSURE (Engines J-2036-1, J-2039-1, and								NP
			J-2075 THRU J-2152) (See figure 1)								
- 1	1	RX20765	CLOSURE ASSY, Propellant, feed ducts							2	2
- 1	1	RK395-10124	CLOSURE ASSY, Inlet ducts (Alternate RK395-10124-011)							2	2
- 1A	1	RK395-52111-003	PLATE ASSY (Replaces RK395-52111 for spares)							12	12
		AN501AD616-10	SCREW (AP)							12	12
		TS1101C6-10M	SCREW (MFD by 08725) (Used on engines J-2075 THRU J-2119) (AP)							12	12
		NAS1101C6-14	SCREW (Used on engines J-2120 THRU J-2152) (AP)							12	12
		LD153-0010-0010	WASHER (AP)							2	2
		LD153-0010-0014	WASHER (AP)							2	2
- 2	2	RK395-44101	SUPPORT ASSY, Fuel inlet duct (Replaces RX19071 or RK395-44051 for							2	2
			spares) (Alternates RK395-44101-011, RK395-44101-021, ...								
			or RK395-44101-031)								
- 3	1	RK395-44100	SUPPORT ASSY, Oxidizer inlet duct (Replaces RX19070 for spares)							2	2
			(Alternate RK395-44100-011)								
- 3A	2	MS171534	PIN							2	2
- 3B	2	RK395-44088	ADAPTER, Duct support							2	2
- 3C	2	RX19129	HAND KNOB, Duct support							2	2
- 3D	2	LD153-0013-0010	WASHER							2	2
- 3E	5	RK395-40050	COVER ASSY, Inlet duct (Fuel or oxidizer bipods)							12	12
- 3F	5	ST39500353RK003	PAD, Inlet duct (Fuel or oxidizer bipods) (Alternate RK395-40050)							2	2
- 4	2	RK395-40016-011	COVER ASSY (Lower fuel inlet duct bellows)							2	2
- 5	2	RK395-40016	COVER ASSY (Upper fuel inlet duct bellows)							2	2
- 6	1	RK395-40016-021	COVER ASSY (Upper and lower oxidizer inlet duct bellows)							4	4
- 7	5	RX20799-51	COVER ASSY, Flexible (OTBV duct bellows)							2	2
- 8	8	RX20799-61	COVER ASSY, Flexible (Turbine crossover duct bellows)							2	2
- 9	6	RX20799-131	COVER ASSY, Flexible (Heat exchanger bellows)							1	1
-10	6	RX20799-71	COVER ASSY, Flexible (Turbine crossover duct bellows)							1	1
-11	5	RX20900	ADAPTER ASSY, Oxidizer side							1	1
		NAS1008-13H	BOLT (AP)							2	2
		LD153-0013-0006	WASHER (AP)							2	2
-12	5, 6	RX20899	ADAPTER ASSY, Fuel side							1	1
		RD111-3004-0752	BOLT (AP)							2	2
		RD111-3004-0712	BOLT (AP)							2	2
		LD153-0013-0005	WASHER (AP)							4	4
-13	4	RK395-10132	CLOSURE ASSY, Thrust chamber exit (Replaces RX20941-11)							1	1
		NAS501-5-10	BOLT (AP)							40	40
		LD153-0010-0012	WASHER (AP)							80	80
		AN316C5R	NUT (AP)							40	40
-14	3	NO. 6-1/2	RUBBER STOPPER (MFD by Fisher Scientific Co. Los Angeles, Calif.)							2	2
-15	3	NO. 7	RUBBER STOPPER (MFD by Fisher Scientific Co. Los Angeles, Calif.)							2	2
-16	3	RK395-10102	COVER ASSY, Thrust chamber (Alternate RK395-10101)							1	1
-17	2	RK395-10098	PLATE ASSY, Round							8	8
-17	2	ST3950118RKL021	COVER ASSY, Protective (Alternate RK395-10098)							3	3
		NAS501-4H11A	BOLT (AP)							6	6
		NAS501-4-11	BOLT (AP)							3	3
		LD153-0010-0010	WASHER (AP)							3	3
		AN316C4R	NUT (AP)							1	1
-18	2	RK395-10096001	PLATE ASSY, Round							4	4
-18	2	ST3950118RKL	COVER ASSY, Protective (Alternate RK395-10096)							8	8
		NAS501-3H12A	BOLT (AP)							4	4
		NAS501-3-12	BOLT (AP)							8	8
		LD153-0010-0008	WASHER (AP)							4	4
		AN121526	NUT (AP)							1	1
-18A	2	RK395-10098	PLATE ASSY, Round							4	4
-18A	2	ST3950118RKL001	COVER ASSY, Protective (Alternate RK395-10098)							4	4
		NAS501-4H12A	BOLT (AP)							8	8
		NAS501-4-12	BOLT (AP)							4	4
		LD153-0010-0010	WASHER (AP)							4	4
		AN316C4R	NUT (AP)							2	2
-19	2	RK395-10097	PLATE ASSY, Round							4	4
-19	2	ST3950118RKL011	COVER ASSY, Protective (Alternate RK395-10097)							8	8
		NAS501-4H12A	BOLT (AP)							4	4
		NAS501-4-12	BOLT (AP)							8	8
		LD153-0010-0010	WASHER (AP)							4	4
		AN316C4R	NUT (AP)							1	1
-20	2	RK395-10099	PLATE ASSY, Round (Alternate to ST3950118RKL031 on engines								
			incorporating MD105 or MD194 change) (SIVB)								
-20	2	ST3950118RKL031	COVER ASSY, Protective (Used on engines not incorporating MD105							1	1
			and MD194 changes) (SII) (Alternate RK395-10099)								
		NAS501-4H11A	BOLT (AP)							2	2
		NAS501-4-11	BOLT (AP)							4	4
		LD153-0010-0010	WASHER (AP)							2	2
		AN121527	NUT (AP)							2	2
-21	2	RK395-40007-201	COVER ASSY, Fuel bleed line							2	2

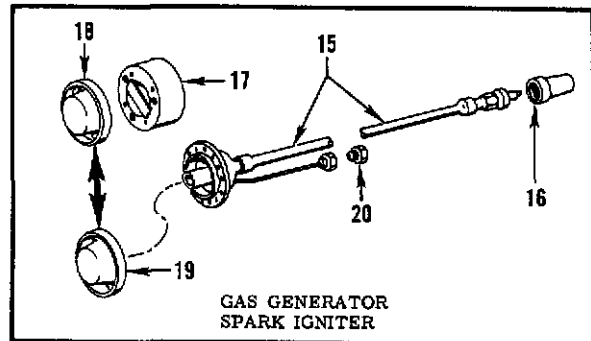
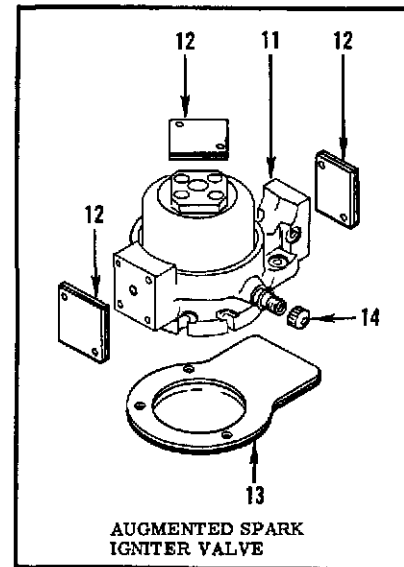
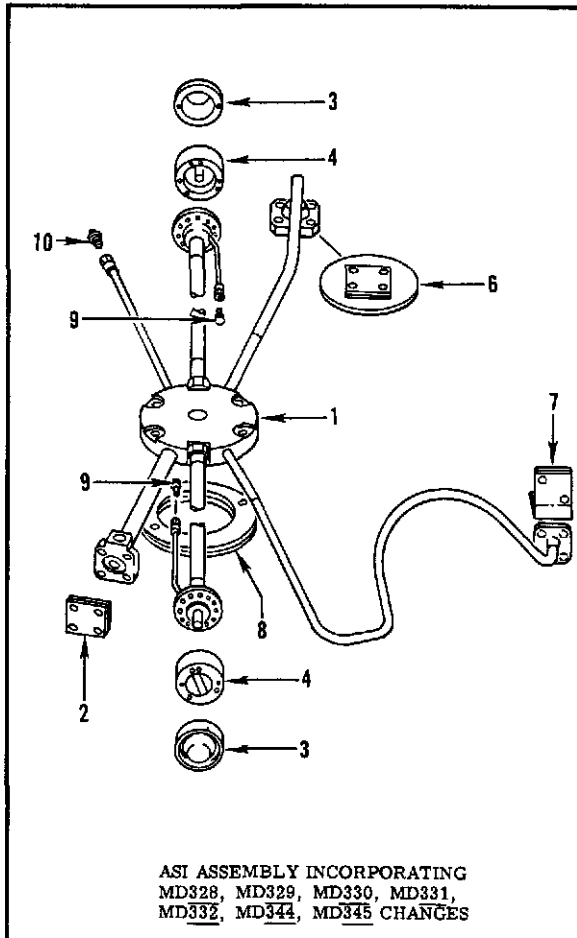
FIG. & INDEX NO.	ZONE NO	PART NUMBER	DESCRIPTION							UNITS PER ASSY	USABLE ON CODE
			1	2	3	4	5	6	7		
33-22 -23 THRU -24 -25	3	RK395-40007-211	COVER ASSY, Fuel bleed line							1	1
	1	DELETED NAS-260235	BOOT ASSY, Gimbal (See figure 20, index 3A, for REQMT) (Replaces NAS-280053 for spares)							REF	REF
-26	7	ST3950263RK1001	CAP ASSY, Burst diaphragm (Oxidizer pump primary seal drain line)							1	1
-27	8	ST39500440RK009	CAP (Purge control valve vent line)							1	1
-28	8	ST39500440RK013	CAP (Fuel turbine seal drain line)							1	1
-29	8	ST39500440RK013	CAP (Oxidizer turbine seal drain line)							1	1
-30	8	ST39500440RK009	CAP (Oxidizer turbopump intermediate seal purge check valve vent)							1	1
-31	6	ST39500391RK001	COVER ASSY, Protective, fuel, torsional ring							1	1
-32	6	827526	INDICATOR PLUG (MFD by 00334)							1	1
-33	6	ST39500393RK001	CLOSURE ASSY, Desiccant							1	1
-34	6	RD170-6006-0001	STREAMER							1	1
-35	7	NAS1004-6A	BOLT							2	2
-35	7	NAS501-4-7A	BOLT (Alternate to NAS1004-6A)							2	2
-36	7	ST39500391RK011	COVER ASSY, Protective, fuel, torsional ring							1	1
-37	7	827526	INDICATOR PLUG (MFD by 00334)							1	1
-38	7	ST39500391RK013	PLATE							1	1
-39	7	RD170-6006-0001	STREAMER							1	1
-40	7	ST39500391RK021	COVER ASSY, Protective, fuel, torsional ring							1	1
-41	7	827526	INDICATOR PLUG (MFD by 00334)							1	1
-42	6	ST39500393RK001	CLOSURE ASSY, Desiccant							1	1
-43	6	RD170-6006-0001	STREAMER							1	1
-44	6	NAS1004-6A	BOLT							2	2
-44	6	NAS501-4-7A	BOLT (Alternate to NAS1004-6A)							2	2
-45	6	ST39500422RK003	CLIP, Inlet duct (Fuel)							3	3
-45	6	ST39500422RK005	CLIP, Inlet duct (Fuel)							3	3
-45	6	ST39500422RK005	CLIP, Inlet duct (Oxidizer)							6	6
-46	7	ST39500392RK001	COVER ASSY, Protective, oxidizer, torsional ring							2	2
-47	7	827526	INDICATOR PLUG (MFD by 00334)							1	1
-48	7	ST39500393RK001	CLOSURE ASSY, Desiccant							1	1
-49	7	RD170-6006-0001	STREAMER							1	1
-50	7	NAS1004-6A	BOLT							2	2
-50	7	NAS501-4-7A	BOLT (Alternate to NAS1004-6A)							2	2
-51	7	ST39500395RK003	STIFFENER							1	1
-52	7	ST39500392RK011	COVER ASSY, Protective, oxidizer, torsional ring							1	1
-53	7	827526	INDICATOR PLUG (MFD by 00334)							1	1
-54	7	ST39500392RK009	PLATE							1	1
-55	7	RD170-6006-0001	STREAMER							1	1
-56	7	NAS1004-6A	BOLT							2	2
-56	7	NAS501-4-7A	BOLT (Alternate to NAS1004-6A)							2	2
-57	7	ST39500395RK003	STIFFENER							1	1



J2-4-129

Figure 33A. Thrust Chamber Closures

FIG & INDEX NO.	PART NO.	DESCRIPTION							UNITS PER ASSY.	USABLE ON CODE
		1	2	3	4	5	6	7		
33A-1	RK395-00001	THRUST CHAMBER CLOSURES (See figure 1 for REQMT)							REF	
-1	RX20185	. PROTECTIVE CLOSURE INSTALLATION, Thrust chamber							1	
	RX20781-21	. CLOSURE ASSY							1	
	NAS501-8H16A	. BOLT (AP)							4	
	LD153-0010-0018	. WASHER (AP)							8	
-2	AN121531	. NUT (AP)							4	
	RX20660-45	. PLATE ASSY							1	
	NAS501-4H10A	. BOLT (AP)							2	
	LD153-0010-0010	. WASHER (AP)							4	
-3	AN316C4R	. NUT (AP)							2	
	RX20610-311	. PLATE ASSY							1	
	NAS501-4H11A	. BOLT (AP)							4	
	LD153-0010-0010	. WASHER (AP)							8	
-4	AN121527	. NUT (AP)							4	
	RX20781-21	. CLOSURE ASSY							1	
	NAS501-8H13A	. BOLT (AP)							4	
	LD153-0010-0018	. WASHER (AP)							8	
-5	AN316C8R	. NUT (AP)							4	
	RK395-10076	. PLATE ASSY							1	
	NAS501-4H10A	. BOLT (AP)							8	
	LD153-0010-0010	. WASHER (AP)							16	
-6	AN121527	. NUT (AP)							8	
	RX20621-21	. COVER ASSY, Preservation and packaging, heat exchanger GOX discharge							2	
	NAS501-4H11A	. BOLT (AP)							4	
	LD153-0010-0010	. WASHER (AP)							8	
-7	AN121527	. NUT (AP)							4	
	RX20660-27	. PLATE ASSY							1	
	NAS501-4H11A	. BOLT (AP)							2	
	LD153-0010-0010	. WASHER (AP)							4	
-8	AN121527	. NUT (AP)							2	
	RX20621-21	. COVER ASSY							2	
	NAS501-4H11A	. BOLT (AP)							8	
	LD153-0010-0010	. WASHER (AP)							16	
	AN121527	. NUT (AP)							8	



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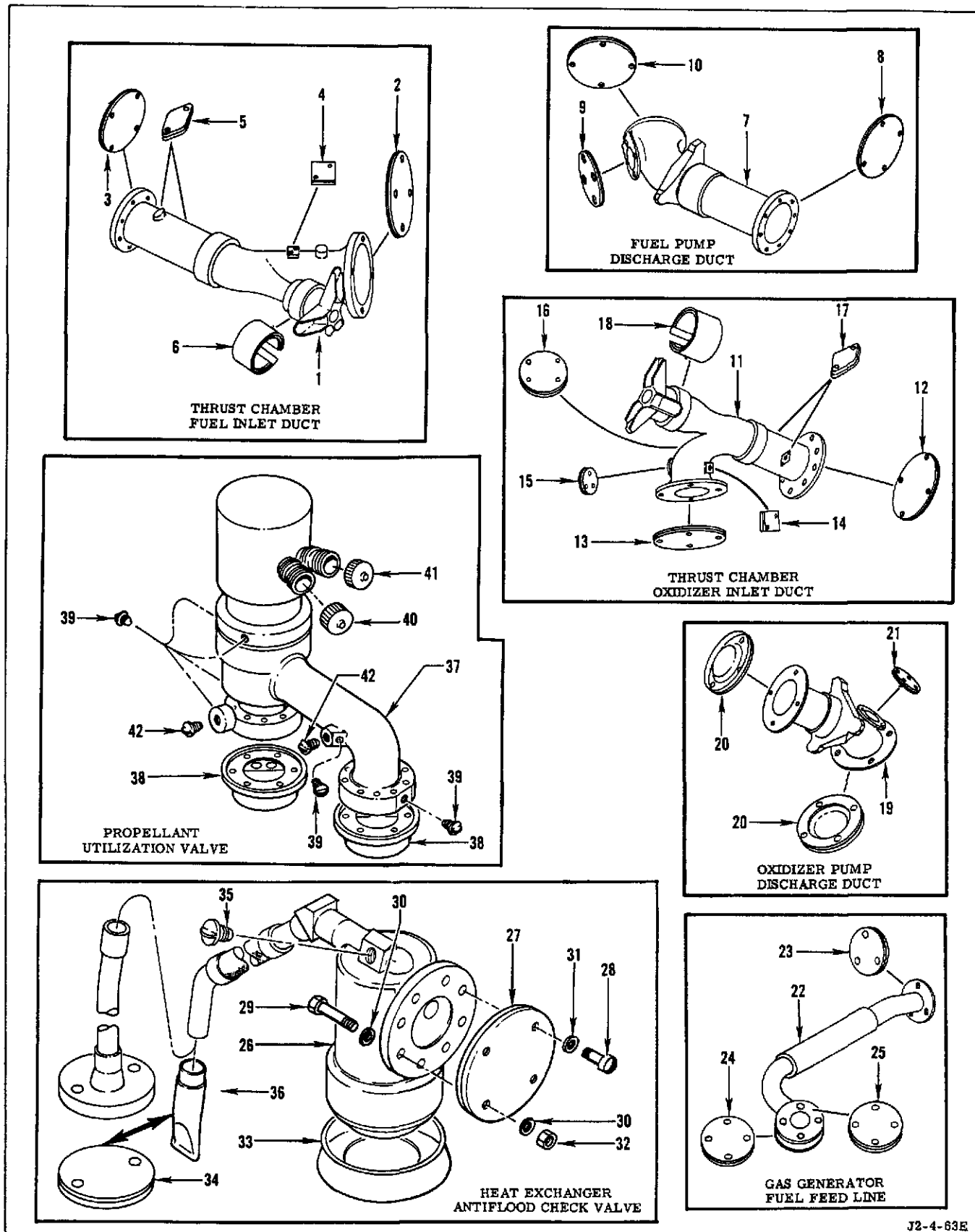
Figure 34. Augmented Spark Igniter and Gas Generator Spark Igniter Closures

FIG & INDEX NO	ZONE NO.	PART NUMBER	DESCRIPTION							UNITS PER ASSY.	USABLE ON CODE
			1	2	3	4	5	6	7		
34-		RK395-00001	THRUST CHAMBER CLOSURES (See figure 1 for REQMT)							REF	
		RX50042	. AUGMENTED SPARK IGNITER CLOSURES							1	
- 1		309360-51	. . . SPARK ASSY, Igniter, augmented (Welded) (ASI)							REF	
- 1		309360-71	. . . SPARK ASSY, Igniter, augmented (Welded) (ASI)							REF	
- 2		ST39500343RK001 (a)	. . . Plate Assy, Spark igniter.							1	
		AN501AD416-8	. . . Screw (AP)							4	
		LD153-0010-0010	. . . WASHER (AP)							4	
- 3		RK395-10049 (a)	. . . Closure Assy, Injector, augmented spark igniter							2	
		NAS501-3-27	. . . Bolt (AP)							8	
		LD153-0010-0008	. . . Washer (AP)							16	
		AN121526	. . . Nut (AP)							8	
- 4		ST3950166RKL001 (a)	. . . Support Assy, Spark igniter							2	
		AN500D516-28	. . . Screw (AP)							6	
		LD153-0010-0008	. . . Washer (AP)							6	
- 5		DELETED									
- 6		ST39500339RK011 (a)	. . . Plate Assy, Spark igniter (Alternate ST39500339RK001)							1	
		MS35276-283	. . . Screw (AP) (Alternate NAS501-4-11)							4	
		LD153-0010-0010	. . . Washer (AP)							8	
		AN316C4R	. . . Nut (AP)							4	
(a) See figure 55A for Alternate Closure Installation on line flanges 6 inches or less.											

Component Closures

FIG. & INDEX NO	ZONE NO	PART NUMBER	DESCRIPTION							UNITS PER ASSY	USABLE ON CODE
			1	2	3	4	5	6	7		
34- 7		ST39500340RK011 (a)	.	.	.	Adapter Assy, Spark igniter (Alternate ST39500340RK001)	.	.	.	1	
		MS35276-283	.	.	.	Screw (AP) (Alternate NAS501-4-11)	.	.	.	2	
		LD153-0010-0010	.	.	.	Washer (AP)	.	.	.	4	
		AN316C4R	.	.	.	Nut (AP)	.	.	.	2	
- 8		ST39500342RK011	.	.	.	Plate Assy, Spark igniter (Alternate ST39500342RK001)	.	.	.	1	
		NAS501-3-22	.	.	.	Bolt (AP)	.	.	.	2	
		LD153-0010-0008	.	.	.	Washer (AP)	.	.	.	4	
		AN320C3	.	.	.	Nut (AP)	.	.	.	2	
- 9		AN806-S2	.	.	.	Plug (NHA 651390)	.	.	.	2	
-10		RD265-2001-0004	.	.	.	Plug	.	.	.	1	
-11		308880	.	.	.	VALVE ASSY, Augmented spark igniter (Welded)	.	.	.	REF	
-12		RX20660-33	.	.	.	Plate Assy	.	.	.	3	
		AN501AD416-8	.	.	.	Screw (AP)	.	.	.	2	
		LD153-0010-0010	.	.	.	Washer (AP)	.	.	.	2	
-13		RX20856-11	.	.	.	Cover Assy	.	.	.	1	
		NAS501-4-11	.	.	.	Bolt (AP)	.	.	.	3	
		LD153-0010-0010	.	.	.	Washer (AP)	.	.	.	6	
		AN316C4R	.	.	.	Nut (AP)	.	.	.	3	
-14		RD265-6002-3005	.	.	.	Cap	.	.	.	1	
-15		651389	.	.	.	SPARK ASSY, Igniter, gas generator (Welded)	.	.	.	REF	
-15		NA5-27448	.	.	.	SPARK ASSY, Igniter, gas generator (Welded)	.	.	.	REF	
-15		NA5-27448T1	.	.	.	SPARK ASSY, Igniter, gas generator (Welded)	.	.	.	REF	
-16		RK395-50090	.	.	.	Cap, Spark igniter	.	.	.	1	
-17		ST3950166RKL001	.	.	.	Support Assy, Spark igniter (Used with NA5-27448)	.	.	.	1	
		AN500D516-28	.	.	.	Screw (AP)	.	.	.	3	
		LD153-0010-0008	.	.	.	Washer (AP)	.	.	.	3	
-18		RK395-10049	.	.	.	Closure Assy, Injector, augmented spark igniter	.	.	.	1	
		NAS501-3-27	.	.	.	Bolt (AP)	.	.	.	4	
		LD153-0010-0008	.	.	.	Washer (AP)	.	.	.	8	
		AN121526	.	.	.	Nut (AP)	.	.	.	4	
-19		RK395-10049	.	.	.	Closure Assy, Injector, augmented spark igniter	.	.	.	1	
		NAS501-3-7	.	.	.	Bolt (AP)	.	.	.	4	
		LD153-0010-0008	.	.	.	Washer (AP)	.	.	.	8	
		AN121526	.	.	.	Nut (AP)	.	.	.	4	
-20		AN806-S2	.	.	.	Plug (Used on new spare igniter assembly)	.	.	.	1	
-20		AN806-S5	.	.	.	Plug (Used on igniter assembly removed from engine)	.	.	.	1	
-20		ST39500440RK003	.	.	.	Cap, Rigid (Used when tube is cut)	.	.	.	1	

(a) See figure 55A for Alternate Closure Installation on line flanges 6 inches or less.



J2-4-63E

Figure 35. Propellant Feed Closures (Sheet 1 of 2)

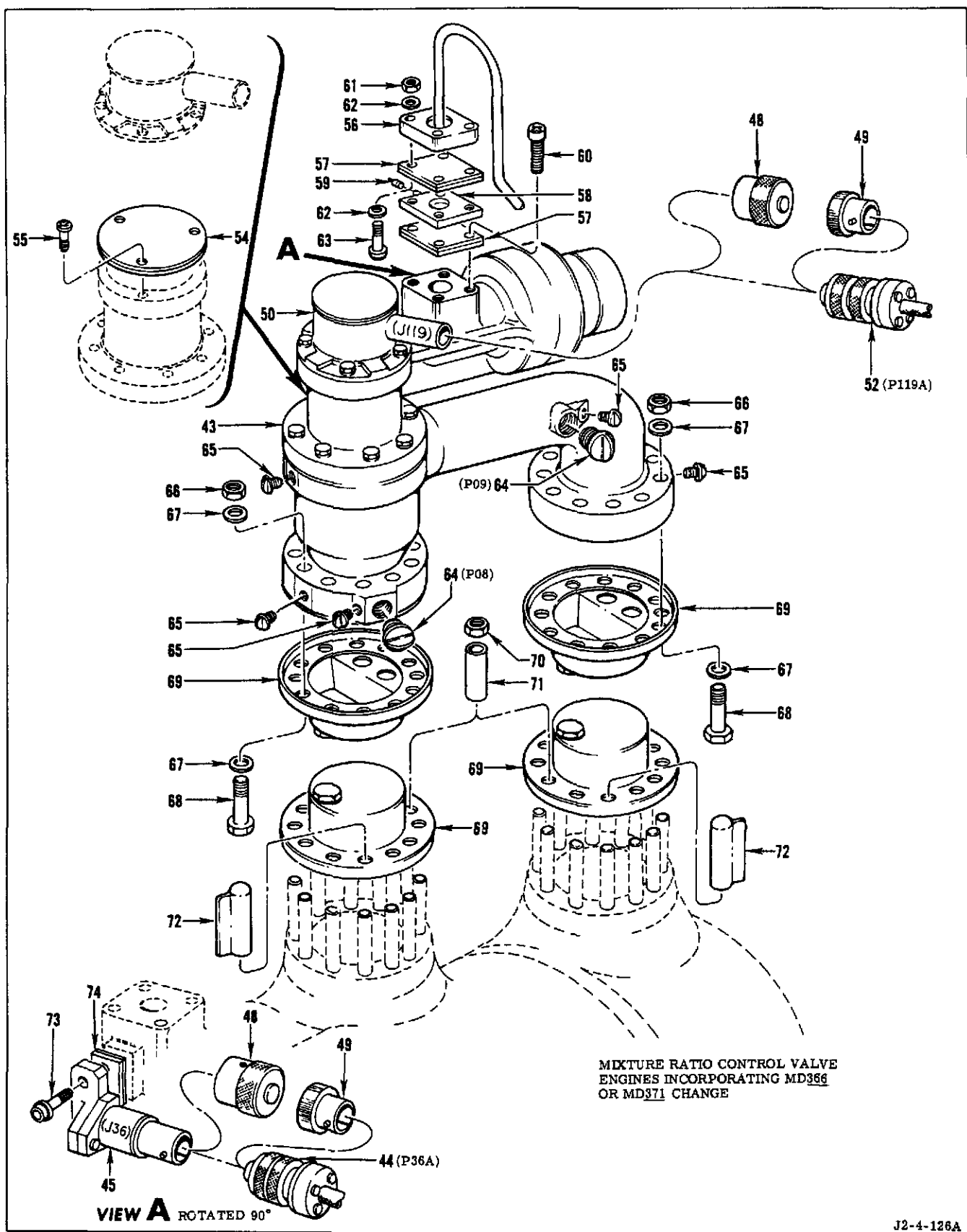


Figure 35. Propellant Feed Closures (Sheet 2 of 2)

Component Closures

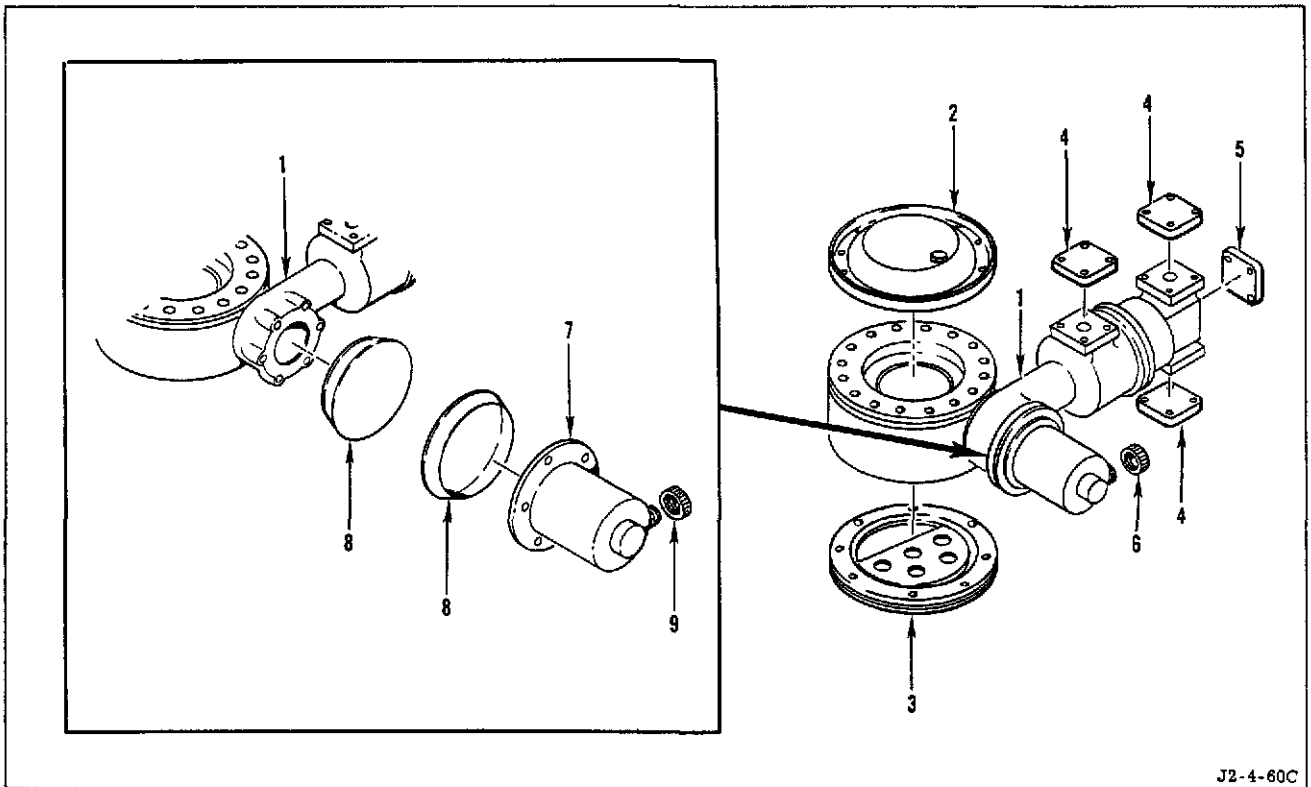
FIG. & INDEX NO.	ZONE NO	PART NUMBER	DESCRIPTION							UNITS PER ASSY	USABLE ON CODE
			1	2	3	4	5	6	7		
35-		RK395-00001	PROPELLANT FEED CLOSURES (See figure 1)							REF	
- 1		RK395-00076	. . . PROPELLANT FEED DUCTS CLOSURES							1	
- 2		408714	. . . DUCT ASSY, Inlet, fuel, thrust chamber.							REF	
		RX20610-201	 Plate Assy							1	
		MS35275-296	 Screw (Replaces AN500AD516-12 for spares) (AP)							4	
		LD153-0010-0014	 Washer (AP)							4	
		RX20874-21	 Tee-Nut (AP)							4	
- 3		RK395-10076-011	 Plate Assy							1	
		MS35275-296	 Screw (Replaces AN500AD516-12 for spares) (AP)							8	
		LD153-0010-0016	 Washer (AP)							8	
		RX20874-21	 Tee-Nut (AP)							8	
- 4		RX20660-59	 Plate Assy							1	
		MS35276-280	 Screw (AP)							2	
		LD153-0010-0010	 Washer (AP)							2	
- 5		RX20867-21	 Plate Assy							2	
		MS35276-280	 Screw (AP)							2	
		LD153-0010-0010	 Washer (AP)							2	
- 6		RX20799-151	 Cover Assy, Flexible							1	
- 7		407604	. . . DUCT ASSY, Insulated, fuel pump discharge							REF	
- 8		RK395-10076-011	 Plate Assy							1	
		MS35275-296	 Screw (Replaces AN500AD516-10 for spares) (AP)							8	
		LD153-0010-0014	 Washer (AP)							8	
		RX20874-21	 Tee-Nut (AP)							4	
- 9		RX20621-21	 Closure Assy, Preservation and packaging, heat exchanger fuel discharge							1	
		MS35276-294	 Screw (AP)							4	
		LD153-0010-0012	 Washer (AP)							4	
-10		RK395-10076-011	 Plate Assy							1	
		NAS501-7H5A	 Bolt (AP)							8	
		LD153-0010-0016	 Washer (AP)							8	
-11		408712	. . . DUCT ASSY, Inlet, thrust chamber oxidizer							REF	
-12		RK395-10076-011	 Plate Assy							1	
		NAS501-6-10	 Bolt (AP)							8	
		LD153-0010-0016	 Washer (AP)							16	
		AN316C6R	 Nut (AP)							8	
-13		RX20610-201	 Plate Assy							1	
		NAS501-7-12A	 Bolt (AP)							4	
		LD153-0010-0016	 Washer (AP)							8	
		AN316C7R	 Nut (AP)							4	
-14		RX20660-33	 Plate Assy							1	
		MS35276-280	 Screw (AP)							2	
		LD153-0010-0010	 Washer (AP)							2	
-15		RX20610-21	 Plate Assy							1	
		MS35276-279	 Screw (AP)							3	
		LD153-0010-0010	 Washer (AP)							3	
-16		RX20621-21	 Cover Assy, Preservation and packaging, heat exchanger GOX discharge							1	
		MS356276-294	 Screw (AP)							4	
		LD153-0010-0012	 Washer (AP)							4	
-17		RX20867-21	 Plate Assy							2	
		MS35276-280	 Screw (AP)							4	
		LD153-0010-0010	 Washer (AP)							4	
-18		RX20799-151	 Cover Assy, Flexible							1	
-19		406919	. . . DUCT ASSY, Oxidizer, pump discharge							REF	
-20		RK395-10076-011	 Plate Assy							2	
		NAS501-6-10	 Bolt (AP)							8	
		LD153-0010-0014	 Washer (AP)							13	
		AN316C6R	 Nut (AP)							8	
-21		RX20823-21	 Plate Assy							1	
		MS35276-280	 Screw (AP)							4	
		LD153-0010-0010	 Washer (AP)							4	
-22		407620	. . . HOSE ASSY, Bootstrap fuel (Welded)							REF	
-23		RX20610-141 (a)	 Plate Assy							1	
		NAS501-4-12	 Bolt (AP)							3	
		LD153-0010-0010	 Washer (AP)							6	
		AN316C4R	 Nut (AP)							3	
-24		RX20621-21	 Closure Assy, Preservation and packaging, heat exchanger GOX discharge							1	
		NAS501-4-12	 Bolt (AP)							4	
		LD153-0010-0010	 Washer (AP)							8	
		AN316C4R	 Nut (AP)							4	
-25		RX20621-21 (a)	 Closure Assy, Preservation and packaging, heat exchanger GOX discharge							1	
		MS35276-294	 Screw (AP)							4	
		LD153-0010-0012	 Washer (AP)							4	
		RK395-00081	. . . HEAT EXCHANGER ANTIFLOOD CHECK VALVE CLOSURES							1	
-26		556446	. . . VALVE ASSY, Check, heat exchanger anti-flood							REF	
-26		557980	. . . VALVE ASSY, Check, heat exchanger anti-flood							REF	
-26		558103-11	. . . VALVE ASSY, Check, heat exchanger anti-flood							REF	

(a) See figure 55A for Alternate Closure Installation on line flanges 6 inches or less.

Component Closures

FIG. & INDEX NO.	ZONE NO.	PART NUMBER	DESCRIPTION							UNITS PER ASSY.	USABLE ON CODE
			1	2	3	4	5	6	7		
35-27		RX20610-241	.	.	.	Plate Assy	.	.	.	1	
-28		MS35276-296	.	.	.	Screw	.	.	.	3	
-29		AN4-12	.	.	.	Bolt	.	.	.	1	
-30		LD153-0011-0014	.	.	.	Washer	.	.	.	2	
-31		LD153-0010-0012	.	.	.	Washer	.	.	.	3	
-32		AN316-4R	.	.	.	NUT	.	.	.	1	
-33		RX20633-201	.	.	.	Cover, Preservation and packaging	.	.	.	1	
-34		ST3950118RKL001	.	.	.	Plate Assy	.	.	.	1	
		NAS501-3-12A	.	.	.	Bolt (AP)	.	.	.	4	
		LD153-0010-0008	.	.	.	Washer (AP)	.	.	.	8	
		MS20341-10C	.	.	.	Nut (AP)	.	.	.	4	
-35		RD265-2001-0004	.	.	.	Plug	.	.	.	1	
-36		ST39500440RK019	.	.	.	Cap	.	.	.	1	
		RX20190	.	.	.	PROPELLANT UTILIZATION VALVE CLOSURES	.	.	.	1	
-37		251351-131	.	.	.	VALVE ASSY, Propellant utilization	.	.	.	REF	
-37		251351-141	.	.	.	VALVE ASSY, Propellant utilization	.	.	.	REF	
-38		RX20606-11	.	.	.	Closure Assy	.	.	.	2	
		NAS501-4H16A	.	.	.	Bolt (AP)	.	.	.	6	
		LD153-0010-0009	.	.	.	Washer (AP)	.	.	.	12	
		AN316C4R	.	.	.	NUT (AP)	.	.	.	6	
-39		RD265-2001-0002	.	.	.	Plug	.	.	.	6	
-40		RD265-6002-3007	.	.	.	Cap	.	.	.	1	
-41		RD265-6002-3007	.	.	.	Cap	.	.	.	1	
-42		RD265-2001-0004	.	.	.	Plug	.	.	.	2	
		RX20190-201	.	.	.	MIXTURE RATIO CONTROL VALVE CLOSURES	.	.	.	1	
-43		309415-211	.	.	.	VALVE ASSY, Mixture ratio control	.	.	.	1	
-43		309415-201	.	.	.	VALVE ASSY, Mixture ratio control	.	.	.	1	
-43		309415-191	.	.	.	VALVE ASSY, Mixture ratio control	.	.	.	1	
-44		NA5-27466T114S	.	.	.	Plug Assy, Electrical, LJT, quick disconnect, high reliability (P36A)	.	.	.	REF	
-45		NA5-28203T1	.	.	.	Valve Assy, 3-way two position, direct solenoid operated (J36)	.	.	.	REF	
-46		DELETED	.	.	.		.	.	.		
-47		DELETED	.	.	.		.	.	.		
-48		RE265-6201-0011	.	.	.	Cap	.	.	.	2	
-49		RE265-6202-0011	.	.	.	Cap	.	.	.	2	
-50		NA5-27480	.	.	.	Transducer, Wirewound, potentiometric type, rotary-motion, 2K ohms, with integral single-pole, double-throw switch	.	.	.	REF	
-51		DELETED	.	.	.		.	.	.		
-52		NA5-27466T1198S	.	.	.	Plug, Electrical, LJT, quick disconnect, high reliability (P119A)	.	.	.	REF	
-53		DELETED	.	.	.		.	.	.		
-54		ST3950243RKL191	.	.	.	Plate Assy	.	.	.	2	
-55		RD111-6001-0401	.	.	.	Screw (Alternate MS35276-280)	.	.	.	6	
		LD153-0010-0010	.	.	.	Washer (Used with MS35276-280)	.	.	.	3	
-56		557876-15	.	.	.	Tube, Control line	.	.	.	REF	
-57		ST3950278RKL021 (a)	.	.	.	Cover Assy, Rectangular (Alternate ST3950185RKL001)	.	.	.	2	
-58		411502	.	.	.	Seal Assy, Pressure-actuated, cryogenic	.	.	.	REF	
-59		RD265-5017-0001	.	.	.	Cap	.	.	.	1	
-60		RD111-6001-0401	.	.	.	Screw (Alternate MS35276-280)	.	.	.	4	
		LD153-0010-0010	.	.	.	Washer (Used with MS35276-280)	.	.	.	4	
-61		AN316-4	.	.	.	Nut	.	.	.	4	
-62		LD153-0010-0010	.	.	.	Washer	.	.	.	8	
-63		MS35276-283	.	.	.	Screw	.	.	.	4	
-64		RD265-2001-0004	.	.	.	Plug	.	.	.	2	
-65		RD265-2001-0002	.	.	.	Plug	.	.	.	5	
-66		AN316C4R	.	.	.	Nut	.	.	.	12	
-67		LD153-0010-0009	.	.	.	Washer	.	.	.	24	
-68		NAS501-4H16A	.	.	.	Bolt	.	.	.	12	
-69		RX20606-11	.	.	.	Closure Assy	.	.	.	4	
-70		AN316C4R	.	.	.	Nut	.	.	.	8	
-71		LD152-0020-1000	.	.	.	Spacer	.	.	.	8	
-72		660904-1	.	.	.	Cap	.	.	.	16	
-73		RD111-6001-0401	.	.	.	Screw (Alternate MS35276-280)	.	.	.	2	
		LD153-0010-0010	.	.	.	Washer (Used with MS35276-280)	.	.	.	2	
-74		ST3950272RKL011	.	.	.	Cover Assy (Alternate RX20660-17)	.	.	.	1	

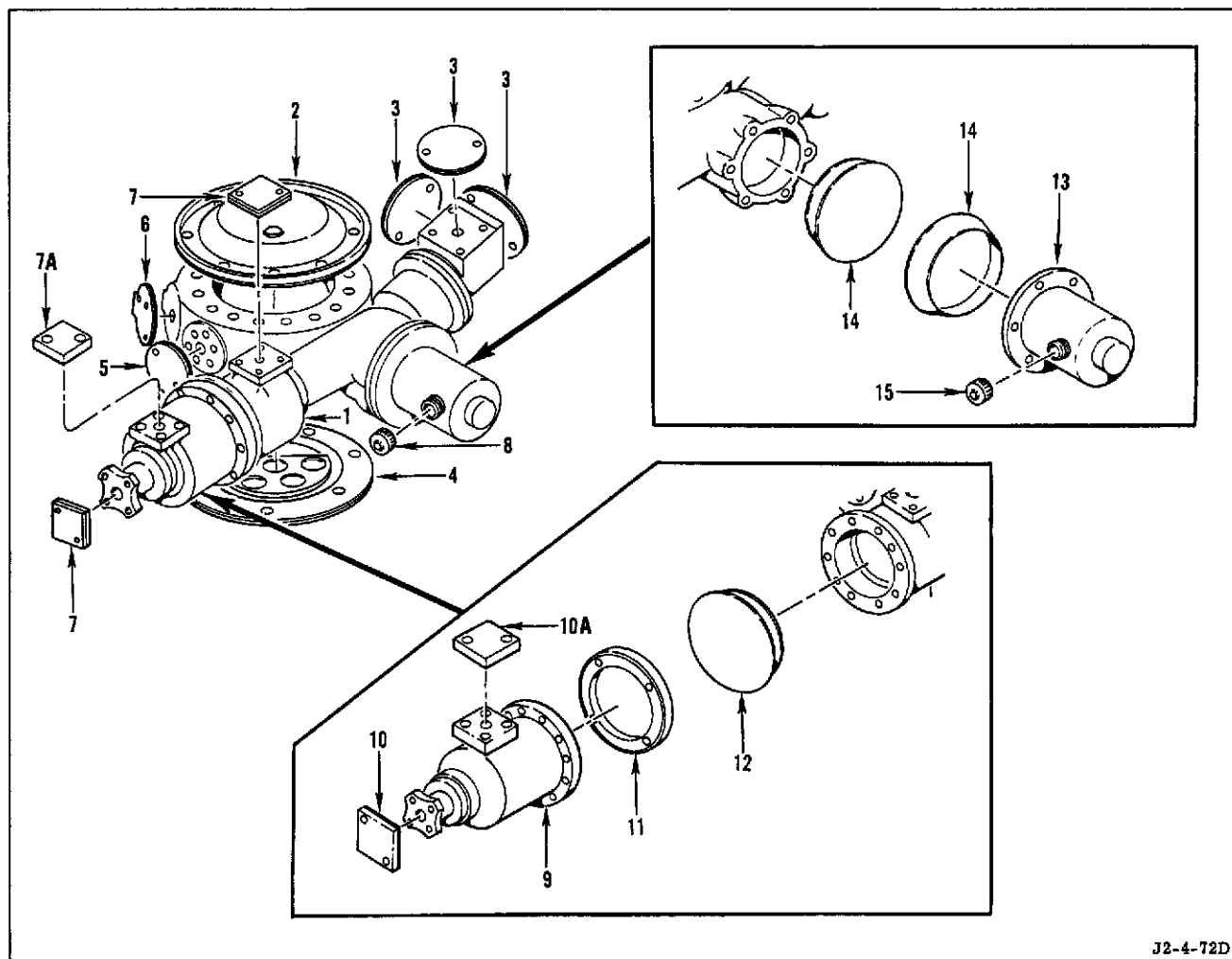
(a) See figure 55A for Alternate Closure Installation on line flanges 6 inches or less.



J2-4-60C

Figure 36. Main Fuel Valve Closures

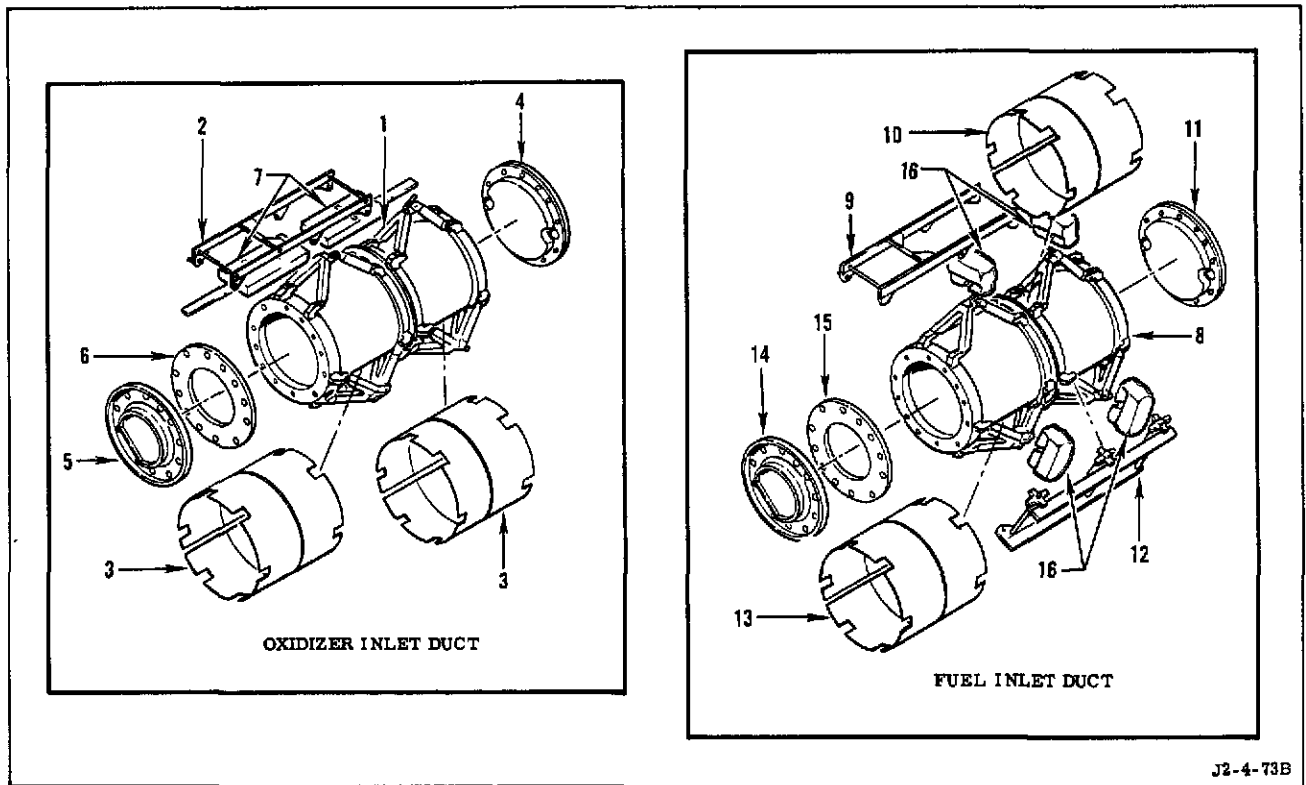
FIG & INDEX NO	ZONE NO	PART NUMBER	DESCRIPTION	UNITS PER ASSY	USABLE ON CODE
			1 2 3 4 5 6 7		
36-		RK395-00001	MAIN FUEL VALVE CLOSURES (See figure 1 for REQMT)	REF	
		RX50021	MAIN FUEL VALVE CLOSURES	1	
- 1		409920	VALVE ASSY, Main fuel	REF	
- 2		RX20934-21	Closure Assy (Alternate RX20781-11)	1	
- 3		RX20934-11	Closure Assy (Alternate RX20781-21)	1	
- 4		RX20660-33	Plate Assy	3	
- 5		RX20660-55	Plate Assy	1	
- 6		RD265-6002-3005	Cap	1	
		RX20660-55	Plate Assy	1	
- 7		405817	INDICATOR ASSY, Position, propellant valve	REF	
- 8		RX20633-7	Cover, Preservation and packaging	2	
- 9		RD265-6002-3005	Cap	1	



J2-4-72D

Figure 37. Main Oxidizer Valve Closures

FIG & INDEX NO	ZONE NO	PART NUMBER	DESCRIPTION							UNITS PER ASSY	USABLE ON CODE
			1	2	3	4	5	6	7		
37-		RK395-00001	MAIN OXIDIZER VALVE CLOSURES (See figure 1 for REQMT)							REF	
- 1		RX50022	MAIN OXIDIZER VALVE CLOSURES							1	
- 1		411031	VALVE ASSY, Main oxidizer							REF	
- 2		411031-11	VALVE ASSY, Main oxidizer							REF	
- 3		RX20934-21	Closure Assy							1	
- 4		RX20610-31	Plate Assy							3	
- 5		RX20934-11	Closure Assy							1	
- 6		RX20610-141	Plate Assy							1	
- 7		RX20773	Plate Assy, Main oxidizer valve							1	
- 8		RX20660-33	Plate Assy							2	
- 9		RD265-6002-3005	Cap							1	
- 10		410050-11	VALVE ASSY, Check, thermostatic orifice							REF	
- 11		RX20660-33	Plate Assy							1	
- 12		RK395-10113	Closure Assy, Oxidizer valve							1	
- 13		RX20633-9	Cover, Preservation and packaging							1	
- 14		405817	INDICATOR ASSY, Position, main propellant valve							REF	
- 15		RX20633-7	Cover, Preservation and packaging							2	
		RD265-6002-3005	Cap							1	



J2-4-73B

Figure 38. Oxidizer and Fuel Inlet Duct Closures

FIG & INDEX NO	ZONE NO	PART NUMBER	DESCRIPTION	UNITS PER ASSY	USABLE ON CODE
			1 2 3 4 5 6 7		
38-		RK395-00001	OXIDIZER AND FUEL INLET DUCT CLOSURES (See figure 1)	REF	
- 1		RK395-00088	OXIDIZER INLET DUCT CLOSURES	1	REF
- 1		408290	DUCT ASSY, Inlet, oxidizer	REF	
- 2		409899	DUCT ASSY, Inlet, oxidizer	2	
		RK395-44100	Support Assy, Inlet duct, oxidizer (Replaces RX19070 for spares)	3	
		MS171534	Pin (AP)	3	
		RX19128	Adapter, Duct support (AP)	3	
		RX19129	Hand Knob, Duct support (AP)	3	
		RD153-0113-0110	Washer (AP)	3	
- 3		RK395-40016-021	Cover Assy	4	
- 4		RX20823-41	Plate Assy	1	
		NAS501-4-13	Bolt (AP)	12	
		LD153-0010-0010	Washer (AP)	24	
		AN316C4R	Nut (AP)	12	
- 5		RK395-10124	Closure Assy, Inlet ducts (Replaces RX20765 for spares)	1	
- 6		RK395-52111-003	Plate Assy	1	
		NAS1101C6-14	Screw (AP)	12	
		LD153-0010-0014	Washer (AP)	12	
- 7		ST39500353RK003	Cover Assy, Inlet duct	6	
		RK395-00089	FUEL INLET DUCT CLOSURES	1	
- 8		408280-11	DUCT ASSY, Inlet, fuel	REF	
- 8		409320-11	DUCT ASSY, Inlet, fuel	REF	
- 8		409900-11	DUCT ASSY, Inlet, fuel	REF	
- 9		RK395-44101	Support Assy, Inlet duct, fuel (Replaces RX19071 for spares)	1	
		MS171534	Pin (AP)	3	
		RK395-44058	Adapter, Duct support (AP)	3	
		RX19129	Hand Knob, Duct support (AP)	3	
		RD153-0113-0110	Washer (AP)	3	
-10		RK395-40016-011	Cover Assy	2	
-11		RK395-10044	Plate Assy	1	
		TS1101C6-10M	Screw (MFD by 06725) (AP)	12	

Component Closures

FIG. & INDEX NO	ZONE NO.	PART NUMBER	DESCRIPTION							UNITS PER ASSY.	USABLE ON CODE
			1	2	3	4	5	6	7		
38- -12		LD153-0010-0014	.	.	.	Washer (AP)	.	.	.	12	
		RK395-44101	.	.	.	Support Assy, Inlet duct, fuel (Replaces RK395-44051 or	.	.	.	1	
						RK395-44065 for spares)	.	.	.		
		MS171534	.	.	.	Pin (AP)	.	.	.	3	
		RK395-44058	.	.	.	Adapter, Duct support (AP)	.	.	.	3	
		RX19129	.	.	.	Hand Knob, Duct support (AP)	.	.	.	3	
		RD153-0113-0110	.	.	.	Washer (AP)	.	.	.	3	
		RK395-40016	.	.	.	Cover Assy	.	.	.	2	
		RK395-10124	.	.	.	Closure Assy, Inlet ducts (Replaces RX20765 for spares)	.	.	.	1	
		RK395-52111-003	.	.	.	Plate Assy	.	.	.	1	
-13		NAS1101C6-14	.	.	.	Screw (AP)	.	.	.	12	
-14		LD153-0010-0014	.	.	.	Washer (AP)	.	.	.	12	
-15		ST39500353RK003	.	.	.	Pad, Inlet duct	.	.	.	6	
-16											

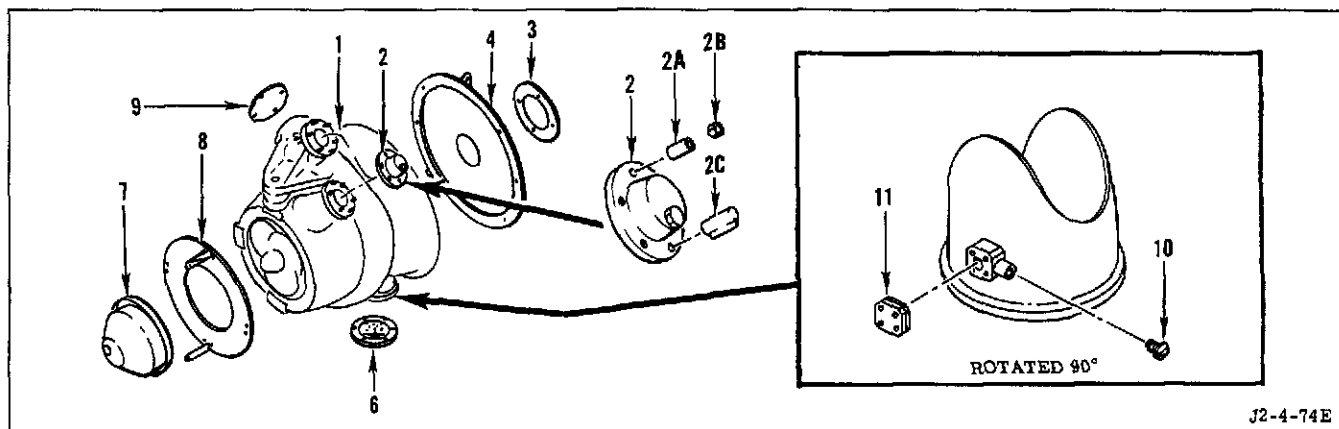
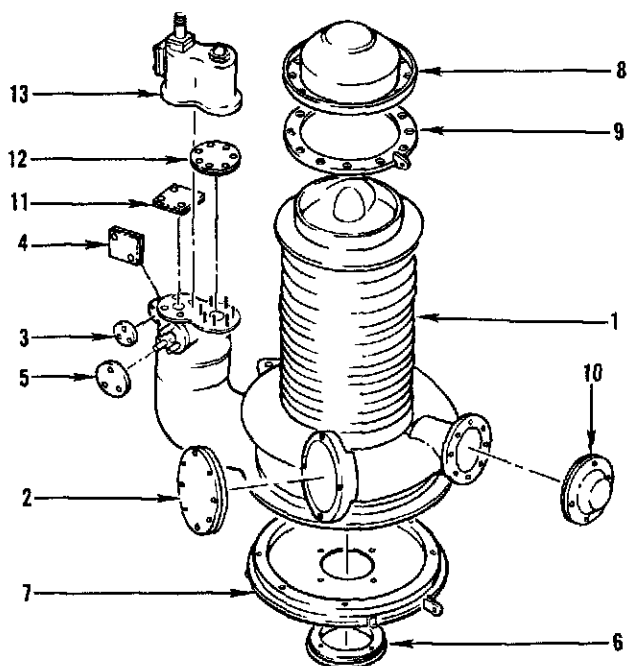


Figure 39. Oxidizer Turbopump Closures

FIG & INDEX NO	ZONE NO	PART NUMBER	DESCRIPTION	UNITS PER ASSY.	USABLE ON CODE
			1 2 3 4 5 6 7		
39-		RK395-00001 RX20183	OXIDIZER TURBOPUMP CLOSURES (See figure 1)	REF	
			OXIDIZER TURBOPUMP CLOSURES	1	
			PARTIAL BREAKDOWN FOLLOWS		
- 1		458175-81	TURBOPUMP ASSY, Oxidizer	REF	
- 1		458175-111	TURBOPUMP ASSY, Oxidizer	REF	
- 1		458175-151	TURBOPUMP ASSY, Oxidizer	REF	
- 1		458175-161	TURBOPUMP ASSY, Oxidizer	REF	
- 2		RX20606-11	Closure Assy, Preservation and packaging	2	
- 2A		LD152-0020-1000	Spacer (AP)	8	
- 2B		AN316C4R	Nut (AP)	8	
- 2C		660904-1	Cap (MFD by 20767) (AP)	8	
- 3		RX20713	Closure Assy, Turbine spline access	1	
		RD111-6001-0402	Screw (AP)	4	
- 4		RX19141-11	Adapter Assy, Discharge flange, turbine, oxidizer pump	1	
		NAS501-4H10A	Bolt (AP)	6	
		LD153-0010-0010	Washer (AP)	12	
		AN316C4R	Nut (AP)	6	
- 5		DELETED			
- 6		RX20720	Closure Assy, Preservation and packaging, turbine manifold inlet	1	
		NAS501-4H10A	Bolt (AP)	6	
		LD153-0010-0010	Washer (AP)	12	
		AN316C4R	Nut (AP)	6	
- 7		RX20714	Closure Assy, Pump inlet	1	
		RD111-6001-0401	Screw (AP)	8	
- 8		RX19142-11	Adapter Assy, Inlet flange, turbine, oxidizer pump	1	
		NAS501-5H7A	Bolt (AP)	8	
		LD153-0010-0012	Washer (AP)	8	
- 9		RK395-10076-021	Plate Assy	1	
		NAS501-7H5A	Bolt (AP)	8	
		LD153-0010-0016	Washer (AP)	8	
-10		RD265-2001-0002	Plug	1	
-11		RX20660-59	Plate Assy	1	
		RD111-6001-0402	Screw (AP)	4	



J2-4-75C

Figure 40. Fuel Turbopump Closures

FIG & INDEX NO	ZONE NO.	PART NUMBER	1	2	3	4	5	6	7	DESCRIPTION	UNITS PER ASSY	USABLE ON CODE
40-		RK395-00001								FUEL TURBOPUMP CLOSURES (See figure 1)	REF	
		RK395-00079								FUEL TURBOPUMP CLOSURES	1	
- 1		460390-191								TURBOPUMP ASSY. Fuel	REF	
- 1		460390-201								TURBOPUMP ASSY. Fuel	REF	
- 1		460390-181								TURBOPUMP ASSY. Fuel	REF	
- 1		460390-151								TURBOPUMP ASSY. Fuel	REF	
- 1		460160-51								TURBOPUMP ASSY. Fuel	REF	
- 1		460160-61								TURBOPUMP ASSY. Fuel	REF	
- 1		460160-71								TURBOPUMP ASSY. Fuel	REF	
										PARTIAL BREAKDOWN FOLLOWS		
- 2		RK395-10076-011								Plate Assy	1	
		NAS501-6H15A								Bolt (AP)	6	
		NAS501-6H17A								Bolt (AP)	2	
		LD153-0010-0014								Washer (AP)	6	
		AN121529								Nut (AP)	8	
- 3		RX20610-21								Plate Assy	1	
		NAS501-4H5A								Bolt (AP)	3	
		LD153-0010-0010								Washer (AP)	3	
- 4		RX20660-33								Plate Assy	1	
		NAS501-4H5A								Bolt (AP)	2	
		LD153-0010-0010								Washer (AP)	2	
- 5		RX20610-181								Plate Assy	1	
		LD152-0020-0375								Spacer (AP)	3	
		AN316C4R								Nut (AP)	3	
- 6		RX20713								Closure Assy, Turbine spline access	1	
		AN501AD416-8								Screw (AP)	4	
		LD153-0010-0010								Washer (AP)	4	
										PARTS LIST CONTINUED ON SUCCEEDING PAGES		

FIG. & INDEX NO.	ZONE NO.	PART NUMBER	DESCRIPTION							UNITS PER ASSY.	USABLE ON CODE
			1	2	3	4	5	6	7		
40- 7		RX19143	.	.	.	Adapter Assy, Discharge flange, turbine, fuel pump (NHA 459000-111) ..				1	
- 7		RK395-44093-011	.	.	.	Adapter Assy, Discharge flange, turbine, fuel pump (NHA 460160)				1	
		NAS501-4H13A	.	.	.	Bolt (AP)				6	
		LD153-0010-0010	.	.	.	Washer (AP)				12	
		AN121527	.	.	.	Nut (AP)				6	
- 8		RX20714	.	.	.	Closure Assy, Pump inlet				1	
		AN501AD416-8	.	.	.	Screw (AP)				8	
		LD153-0010-0010	.	.	.	Washer (AP)				8	
- 9		RK395-44094-011	.	.	.	Adapter Assy, Inlet flange, fuel pump				1	
		NAS501-4H6A	.	.	.	Bolt (AP)				6	
		LD153-0010-0010	.	.	.	Washer (AP)				6	
-10		RX20892-11	.	.	.	Plate Assy				1	
		AN501AD616-10	.	.	.	Screw (AP)				4	
		LD153-0010-0014	.	.	.	Washer (AP)				4	
-11		ST3950052RKL001	.	.	.	Plate Assy, Pump				1	
		AN501AD516-18	.	.	.	Screw (AP)				4	
		LD153-0010-0012	.	.	.	Washer (AP)				4	
-12		RX20610-131	.	.	.	Plate Assy				1	
		LD153-0020-0437	.	.	.	Spacer (AP)				7	
		AN121527	.	.	.	Nut (AP)				7	
-13		309040-31	.	.	.	VALVE ASSY, Control, gas generator (See figure 48 for closure REQMT) ..				REF	

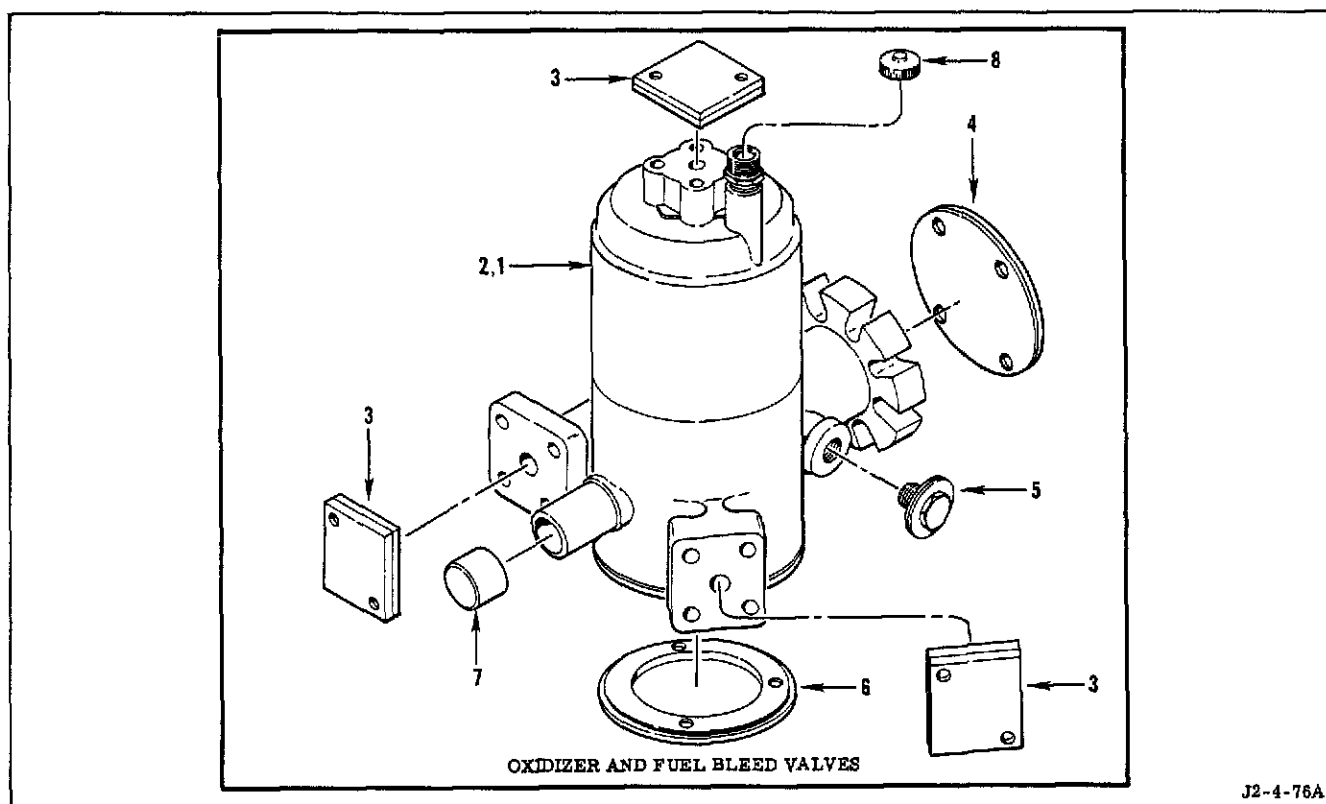
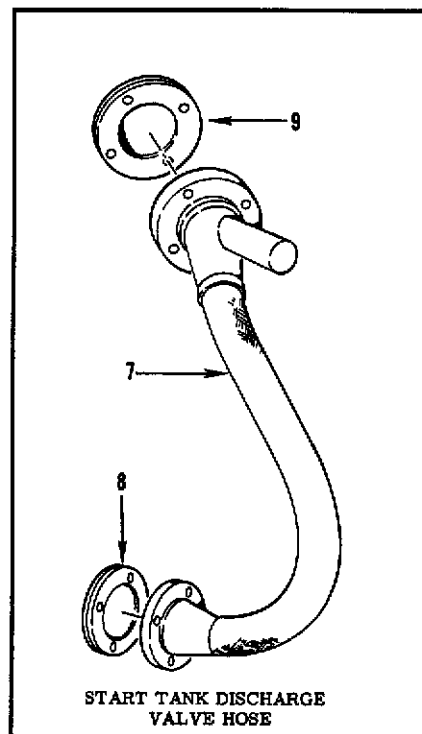
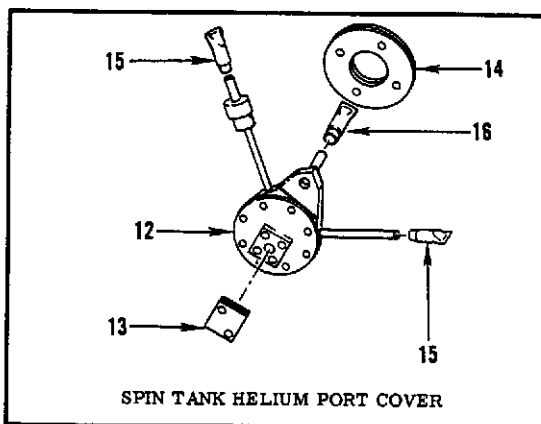
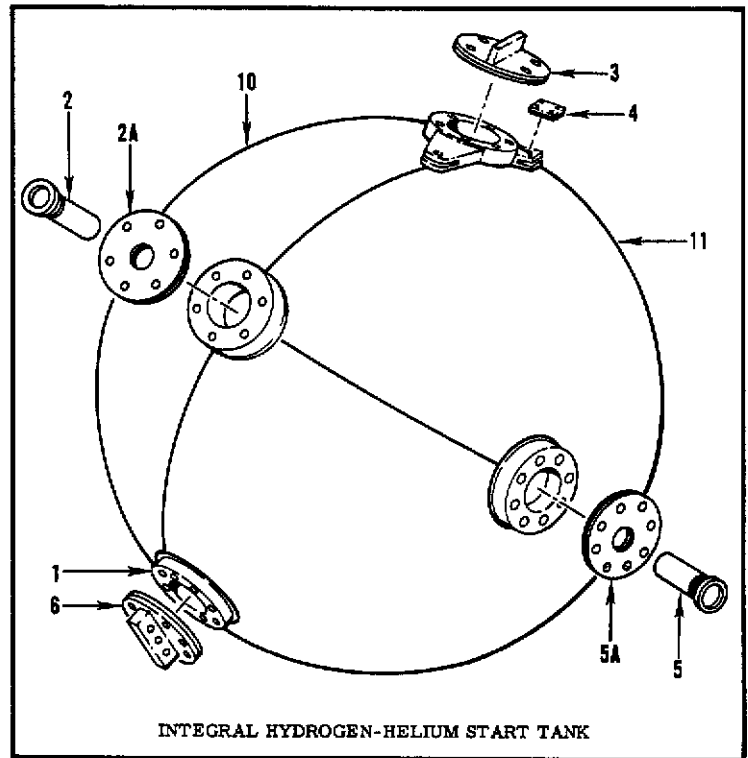
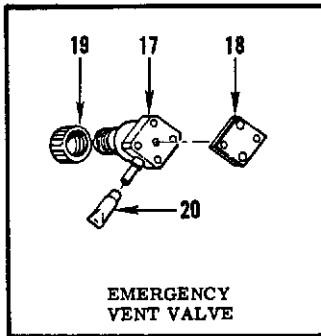


Figure 41. Oxidizer and Fuel Bleed Valve Closures

FIG & INDEX NO.	ZONE NO	PART NUMBER	DESCRIPTION							UNITS PER ASSY	USABLE ON CODE
			1	2	3	4	5	6	7		
41-		RK395-00001	OXIDIZER AND FUEL BLEED VALVE CLOSURES (See figure 1)							REF	
- 1		RX50126	OXIDIZER AND FUEL BLEED VALVE CLOSURES							1	
- 2		309029	VALVE ASSY, Oxidizer bleed							REF	
- 3		309034	VALVE ASSY, Fuel bleed							REF	
		RX20660-33	Plate Assy							3	
		AN501AD416-10	Screw (AP)							2	
		LD153-0010-0010	Washer (AP)							2	
- 4		RX20621-21	Closure Assy, Preservation and packaging, heat exchanger GOX discharge							1	
		NAS501-4-12	Bolt (AP)							4	
		LD153-0010-0010	Washer (AP)							8	
		AN316C4R	Nut (AP)							4	
- 5		RX20774-11	Plug Assy, Main propellant valve							1	
- 6		RX20058-11	Closure Assy, Preservation and packaging, turbine inlet							1	
		AN501AD416-12	Screw (AP)							3	
- 7		LD153-0010-0010	Washer (AP)							3	
- 8		1704-18Y	Cap (MFD by 65301)							1	
		RD265-6002-3002	Cap							1	



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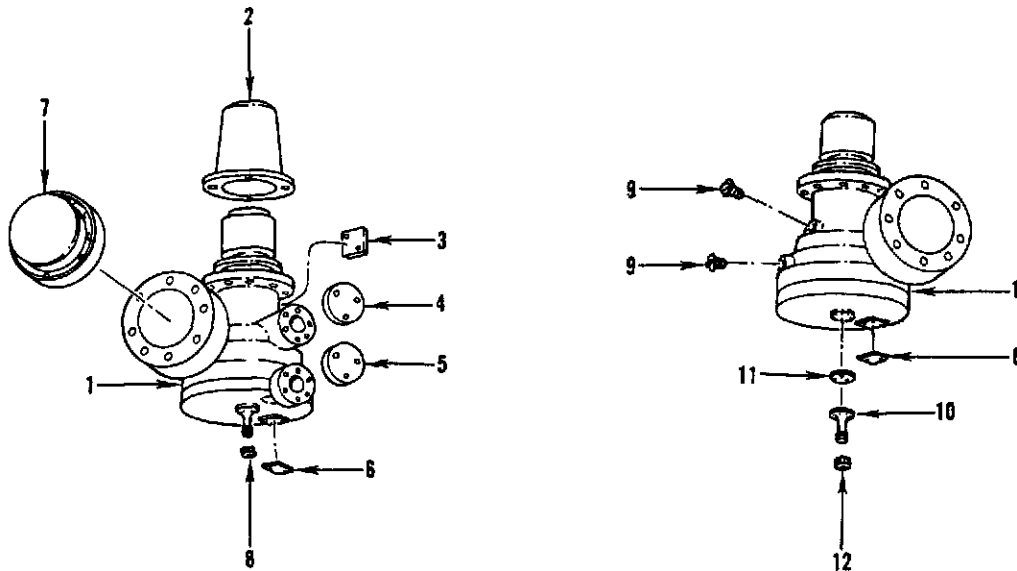
Figure 42. Hydrogen and Helium Tank Closures

Section II

R-3825-4

Component Closures

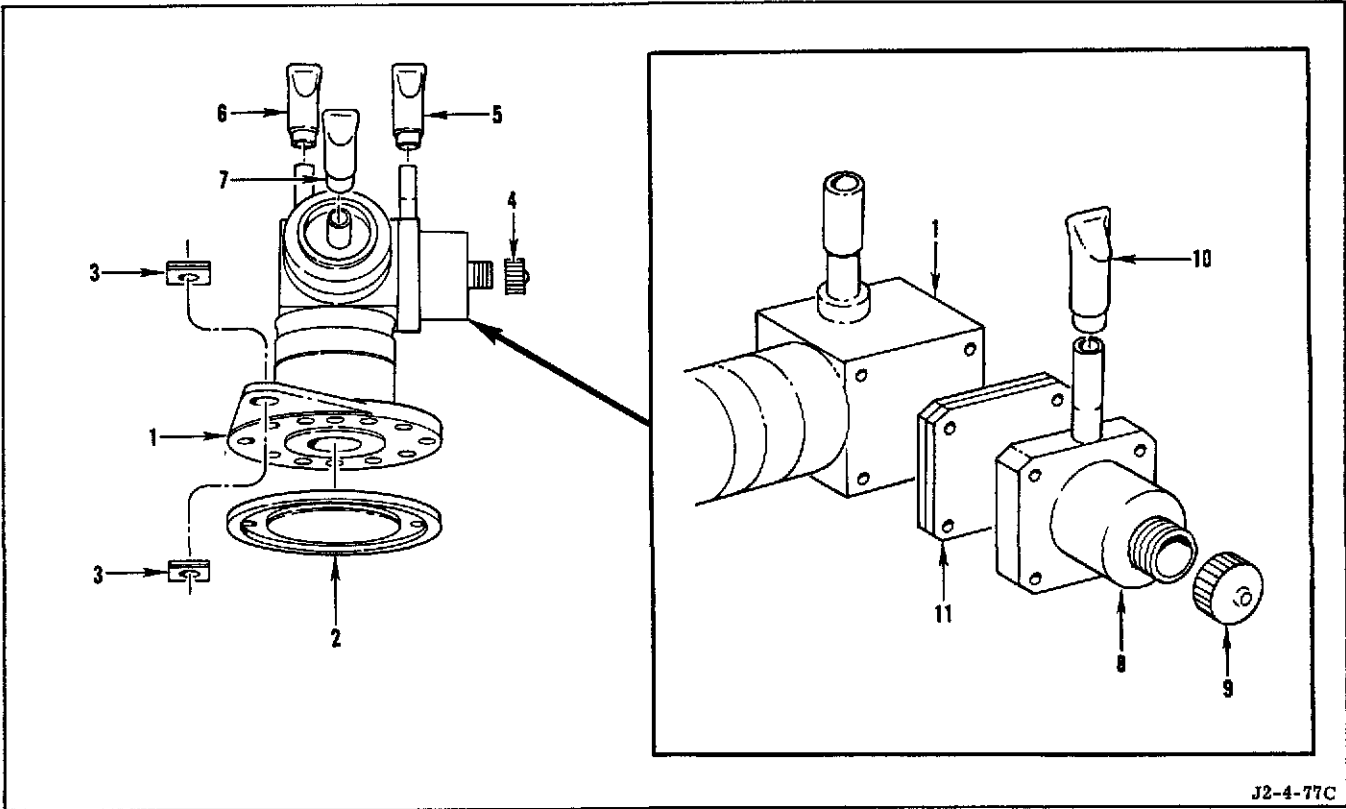
FIG. & INDEX NO.	ZONE NO.	PART NUMBER	DESCRIPTION							UNITS PER ASSY.	USABLE ON CODE
			1	2	3	4	5	6	7		
42-		RK395-00001	HYDROGEN AND HELIUM TANK CLOSURES (See figure 1)							REF	
		RK395-00070	. . . HYDROGEN AND HELIUM TANK CLOSURES							1	
- 1		307579	. . . TANK ASSY, Integral, insulated							REF	
- 2		375690-6	. . . Desiccator Plug (MFD by 81248) (Replaces RK395-44097)							1	
- 2A		ST39500396RK011	. . . Closure Assy, Desiccator, metal (Replaces RK395-44097)							1	
			(Alternate ST39500396RK021)								
		NAS501-5H5A	. . . Bolt (AP)							6	
		LD153-0010-0012	. . . Washer (AP)							6	
- 3		RK395-44081	. . . Closure Assy, Spin start							1	
		NAS501-7H5A	. . . Bolt (AP)							6	
		LD153-0010-0016	. . . Washer (AP)							6	
- 4		RX20660-59	. . . Plate Assy (Replaces RK395-10072)							1	
		NAS501-4H5A	. . . Bolt (AP)							4	
		LD153-0010-0010	. . . Washer (AP)							4	
- 5		375690-6	. . . Desiccator Plug (MFD by 81248) (Replaces RK395-44096)							1	
- 5A		ST39500396RK001	. . . Closure Assy, Desiccator, metal (Replaces RK395-44096)							1	
		NAS501-6H5A	. . . Bolt (AP)							8	
		LD153-0010-0014	. . . Washer (AP)							8	
- 6		RK395-44081-011	. . . Closure Assy, Spin start							1	
		NAS501-6H6A	. . . Bolt (AP)							6	
		LD153-0010-0014	. . . Washer (AP)							6	
- 7		308890	. . . HOSE ASSY, Check valve, start tank discharge valve							REF	
- 8		RX20602 (a)	. . . Closure Assy, Preservation and packaging, fuel valve swing check							1	
		NAS501-4-12	. . . Bolt (AP)							4	
		LD153-0010-0010	. . . Washer (AP)							8	
		AN316C4R	. . . Nut (AP)							4	
- 9		RX20717-51 (a)	. . . Closures Assy							1	
		NAS501-4-10	. . . Bolt (AP)							4	
		LD153-0010-0010	. . . Washer (AP)							8	
		AN316C4R	. . . Nut (AP)							4	
-10		ST3950127RKL021	. . . Protector Assy, Spin start tank							1	
-11		ST3950127RKL031	. . . Protector Assy, Spin start tank							1	
-12		303428	. . . COVER ASSY, Helium port, spin tank							REF	
-12		303428-11	. . . COVER ASSY, Helium port, spin tank							REF	
-13		RX20660-33	. . . Plate Assy							1	
		RD111-6001-0401	. . . Screw (AP)							2	
-14		RK395-10025	. . . Plate Assy							1	
		NAS501-4-13	. . . Bolt (AP)							4	
		LD153-0010-0010	. . . Washer (AP)							8	
		AN121527	. . . Nut (AP)							4	
-15		ST39500440RK009	. . . Cap							2	
-16		ST39500440RK005	. . . Cap							1	
-17		558301-21	. . . VALVE ASSY, Emergency vent							REF	
-18		RX20636	. . . Plate Assy, LOX bleed line							1	
		NAS501-4-7	. . . Bolt (AP)							4	
		LD153-0010-0010	. . . Washer (AP)							8	
		AN316C4R	. . . Nut (AP)							4	
-19		RD265-6002-3004	. . . Cap							1	
-20		ST39500440RK009	. . . Cap							1	
(a) See figure 55A for Alternate Closure Installation on line flanges 6 inches or less.											



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Figure 43. Start Tank Discharge Valve Closures

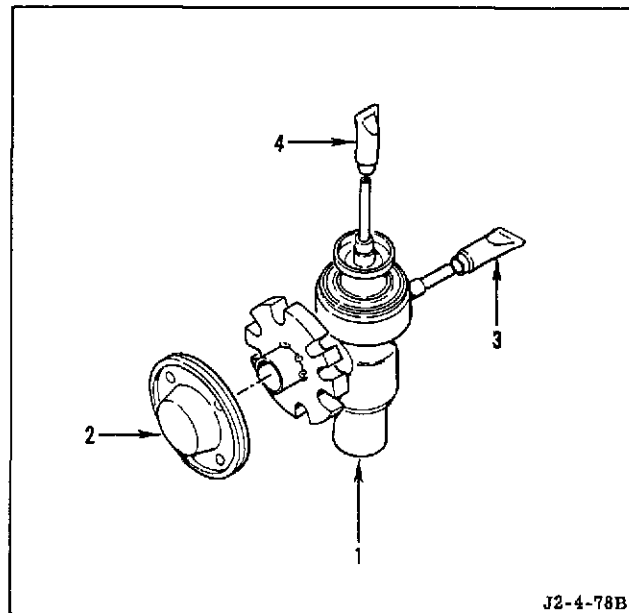
FIG & INDEX NO	ZONE NO	PART NUMBER	DESCRIPTION							UNITS PER ASSY.	USABLE ON CODE
			1	2	3	4	5	6	7		
43-		RK395-00001	START TANK DISCHARGE VALVE CLOSURES (See figure 1 for REQMT)							REF	
- 1		RX50013	. . . START TANK DISCHARGE VALVE CLOSURES							1	
- 1		309020	. . . VALVE ASSY, Start tank discharge							REF	
- 1		306875-21	. . . VALVE ASSY, Start tank discharge							REF	
- 1		304386	. . . VALVE ASSY, Start tank discharge							REF	
- 1		304386-21	. . . VALVE ASSY, Start tank discharge							REF	
- 2		RX20603-41	. . . Closure Assy, Preservation and packaging							1	
- 3		RK395-10072	. . . Plate Assy							1	
- 4		RX20610-21	. . . Plate Assy							1	
- 5		RX20610-321	. . . Plate Assy							1	
- 6		RX20660-33	. . . Plate Assy							1	
- 7		RX20717-51	. . . Closure Assy							1	
- 8		RD265-6002-3005	. . . Cap							1	
- 9		RD265-2001-0004	. . . Plug							2	
-10		NA5-27306	. . . RESISTOR, Variable, linear-motion, 2K ohms with integral							REF	
			single-pole, double-throw switch								
-11		RX20892	. . . Plate Assy							1	
-12		RD265-6002-3005	. . . Cap							1	



J2-4-77C

Figure 44. Start Tank Support-and-Fill Valve Closures

FIG. & INDEX NO	ZONE NO.	PART NUMBER	DESCRIPTION							UNITS PER ASSY.	USABLE ON CODE
			1	2	3	4	5	6	7		
44-		RK395-00001	START TANK SUPPORT-AND-FILL VALVE CLOSURES (See figure 1)							REF	
- 1		RX50033	. . . START TANK SUPPORT-AND-FILL VALVE CLOSURES							1	
		557998-41	. . . VALVE PACKAGE ASSY, Tank support-and-fill (Start tank support-and-fill valve)							REF	
- 2		RK395-10107	. . . Closures Assy, Spin start							1	
		AN4-12	. . . Bolt (AP)							4	
		LD153-0011-0014	. . . Washer (AP)							8	
- 3		AN320-4	. . . Nut (AP)							4	
		RX20654	. . . Plate Assy, Elbow, engine control							2	
		AN4-12	. . . Bolt (AP)							1	
- 4		LD153-0011-0014	. . . Washer (AP)							2	
		AN318-4R	. . . Nut (AP)							1	
- 5		RD265-6002-3004	. . . Cap							1	
- 6		ST39500440RK009	. . . Cap							1	
- 7		ST39500440RK017	. . . Cap							1	
- 8		ST39500440RK025	. . . Cap							1	
- 9		558301-21	. . . VALVE ASSY, Emergency vent							REF	
- 10		RD265-6002-3004	. . . Cap							1	
- 11		ST39500440RK009	. . . Cap							1	
		RK395-10004-011	. . . Plate Assy							1	
		AN501AD416-10	. . . Screw (AP)							4	
		LD153-0010-0010	. . . Washer (AP)							4	



J2-4-78B

Figure 45. Start Tank Vent-and-Relief Valve Closures

FIG & INDEX NO	ZONE NO.	PART NUMBER	DESCRIPTION							UNITS PER ASSY.	USABLE DN CODE
			1	2	3	4	5	6	7		
45-		RK395-00001	START TANK VENT-AND-RELIEF VALVE CLOSURES (See figure 1)							REF	
- 1		RX50121	. START TANK VENT-AND-RELIEF VALVE CLOSURES							1	
- 1		557848	. VALVE ASSY, Vent and relief							REF	
- 1		557848-11	. VALVE ASSY, Vent and relief							REF	
- 1		557848-21	. VALVE ASSY, Vent and relief							REF	
- 2		RX20944	. Closure Assy, Vent valve							1	
		AN6-13	. Bolt (AP)							4	
		RD153-0113-0076	. Washer (AP)							8	
		AN316-6R	. Nut (AP)							4	
- 3		ST39500440RK013	. Cap							1	
- 4		ST39500440RK009	. Cap							1	

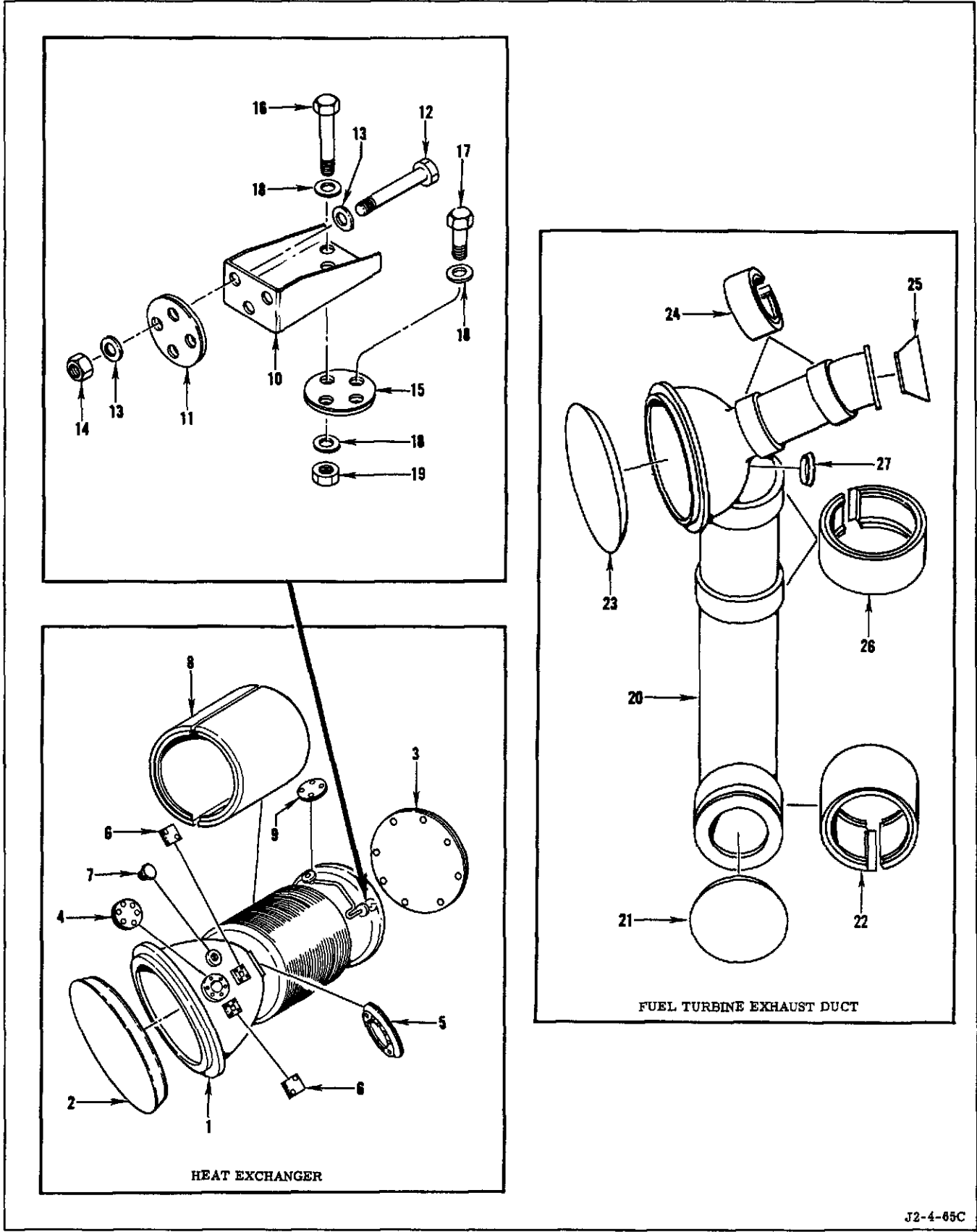
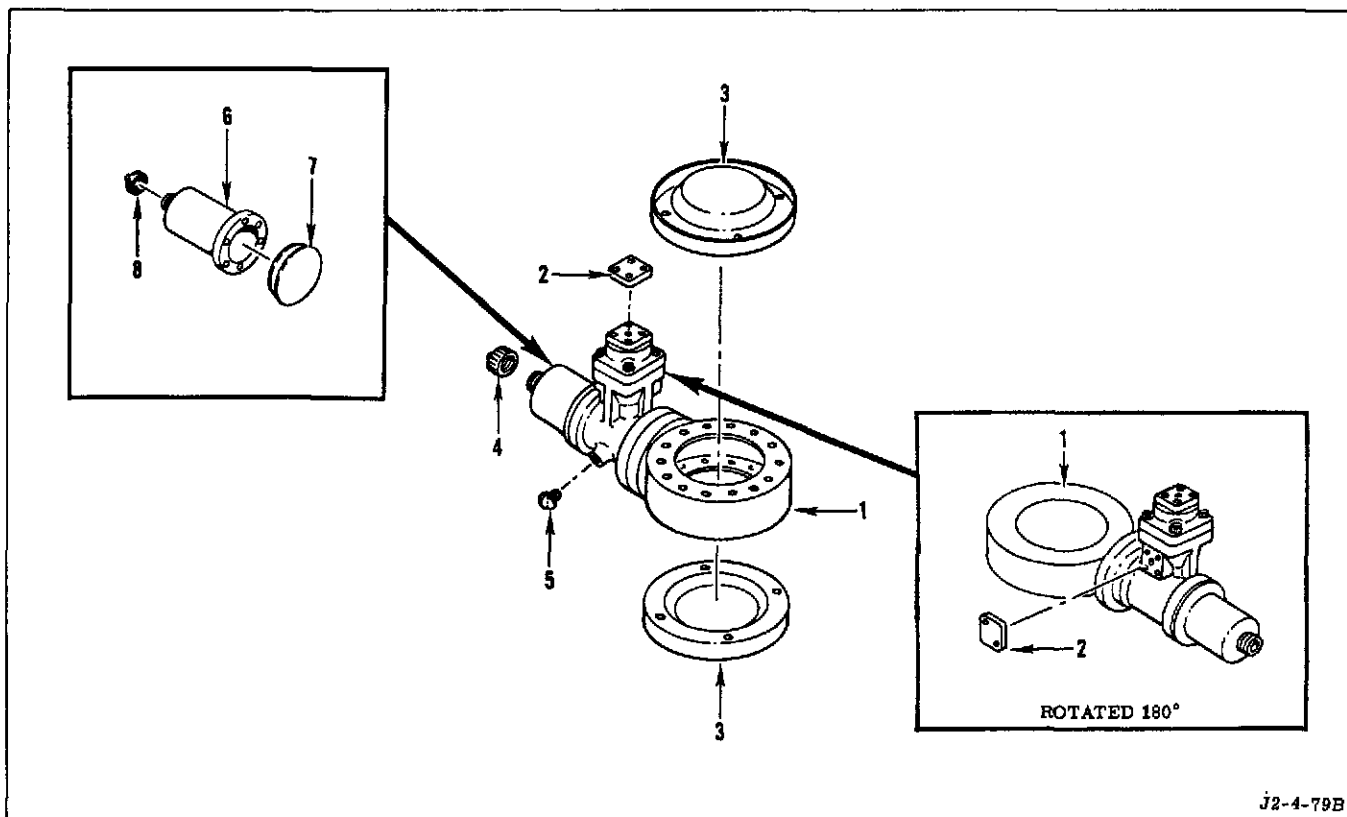


Figure 46. Exhaust Ducts Closures

FIG. 8 INDEX NO.	ZONE NO.	PART NUMBER	DESCRIPTION							UNITS PER ASSY.	USABLE ON CODE
			1	2	3	4	5	6	7		
46-		RK395-00001	EXHAUST DUCTS CLOSURES (See figure 1)							REF	
		RX50080	EXHAUST DUCTS CLOSURES							1	
- 1		307725-41	HEAT EXCHANGER ASSY, LOX turbine, exhaust duct (Welded)							REF	
- 1		307725-61	HEAT EXCHANGER ASSY, LOX turbine, exhaust duct (Welded)							REF	
- 2		RX20833-27	Cover, Preservation and packaging							1	
- 3		RK395-10076	Plate Assy							1	
		NAS501-4H10A	Bolt (AP)							8	
		LD153-0010-0010	Washer (AP)							16	
		AN316C4R	Nut (AP)							8	
- 4		RX20868-201	Plate Assy							1	
		RD111-6001-0401	Screw (AP)							6	
- 5		RK395-10019	Closure Assy, Exhaust duct							1	
		514	Cap (MFD by 20767) (AP)							6	
		LD153-0010-0014	Washer (AP)							6	
		NAS509-8	Nut (AP)							6	
- 6		RX20660-33	Plate Assy							2	
		RD111-6001-0401	Screw (AP)							2	
- 7		RX20774-11	Plug Assy, Main propellant valve							1	
- 8		RX20674-171	Cover Assy							2	
- 9		RX20621	Closure Assy, Preservation and packaging, heat exchanger GOX discharge							1	
		RD111-6001-0401	Screw (AP)							4	
-10		RX19150	Support Assy, Heat exchanger, 4 coil							1	
-11		RX20868-211	Plate Assy							1	
-12		NAS501-4H15A	Bolt (AP)							4	
-13		LD153-0010-0010	Washer (AP)							8	
-14		AN316C4R	Nut (AP)							4	
-15		RX20610-241	Plate Assy							1	
-16		NAS501-5H12A	Bolt (AP)							3	
-17		NAS501-5H4A	Bolt							1	
-18		LD153-0010-0012	Washer (AP)							7	
-19		AN316C5R	Nut (AP)							3	
-20		307714	DUCT ASSY, Fuel turbine exhaust							REF	
-20		307714-11	DUCT ASSY, Fuel turbine exhaust							REF	
-21		RX20833-15	Cover, Preservation and packaging							1	
-22		RX20799-71	Cover Assy, Flexible							1	
-23		RX20833-23	Cover, Preservation and packaging							1	
-24		RX20799-51	Cover Assy, Flexible							2	
-25		RX20833-13	Cover, Preservation and packaging							1	
-26		RX20799-61	Cover Assy, Flexible							2	
-27		RX20833-201	Cover, Preservation and packaging							1	



J2-4-79B

Figure 47. Oxygen Turbine Bypass Valve (Oxidizer Turbine Bypass Valve) Closures

FIG & INDEX NO	ZONE NO	PART NUMBER	DESCRIPTION	UNITS PER ASSY	USABLE ON CODE
			1 2 3 4 5 6 7		
47-		RK395-00001	OXIDIZER TURBINE BYPASS VALVE CLOSURES (See figure 1)	REF	
		RK50020	OXIDIZER TURBINE BYPASS VALVE CLOSURES	1	
- 1		409930	VALVE ASSY, Bypass, oxygen turbine (Oxidizer turbine bypass valve) . . .	REF	
- 1		409940	VALVE ASSY, Bypass, oxygen turbine (Oxidizer turbine bypass valve) . . .	REF	
- 2		RX20660-33	Plate Assy	2	
		MS35276-280	Screw (AP)	4	
		LD153-0010-0010	Washer (AP)	4	
- 3		RX20031-41	Closure Assy, Preservation and packaging	2	
		NAS501-4-26	Bolt (AP)	8	
		LD153-0010-0010	Washer (AP)	16	
		AN316C4R	Nut (AP)	8	
- 4		RD265-6002-3007	Cap	1	
- 5		RD265-2001-0008	Cap	1	
- 6		408012	RESISTOR ASSY, Variable, oxidizer turbine bypass valve	REF	
- 7		RX20633-3	Cover, Preservation and packaging	1	
- 8		RD265-6002-3007	Cap	1	

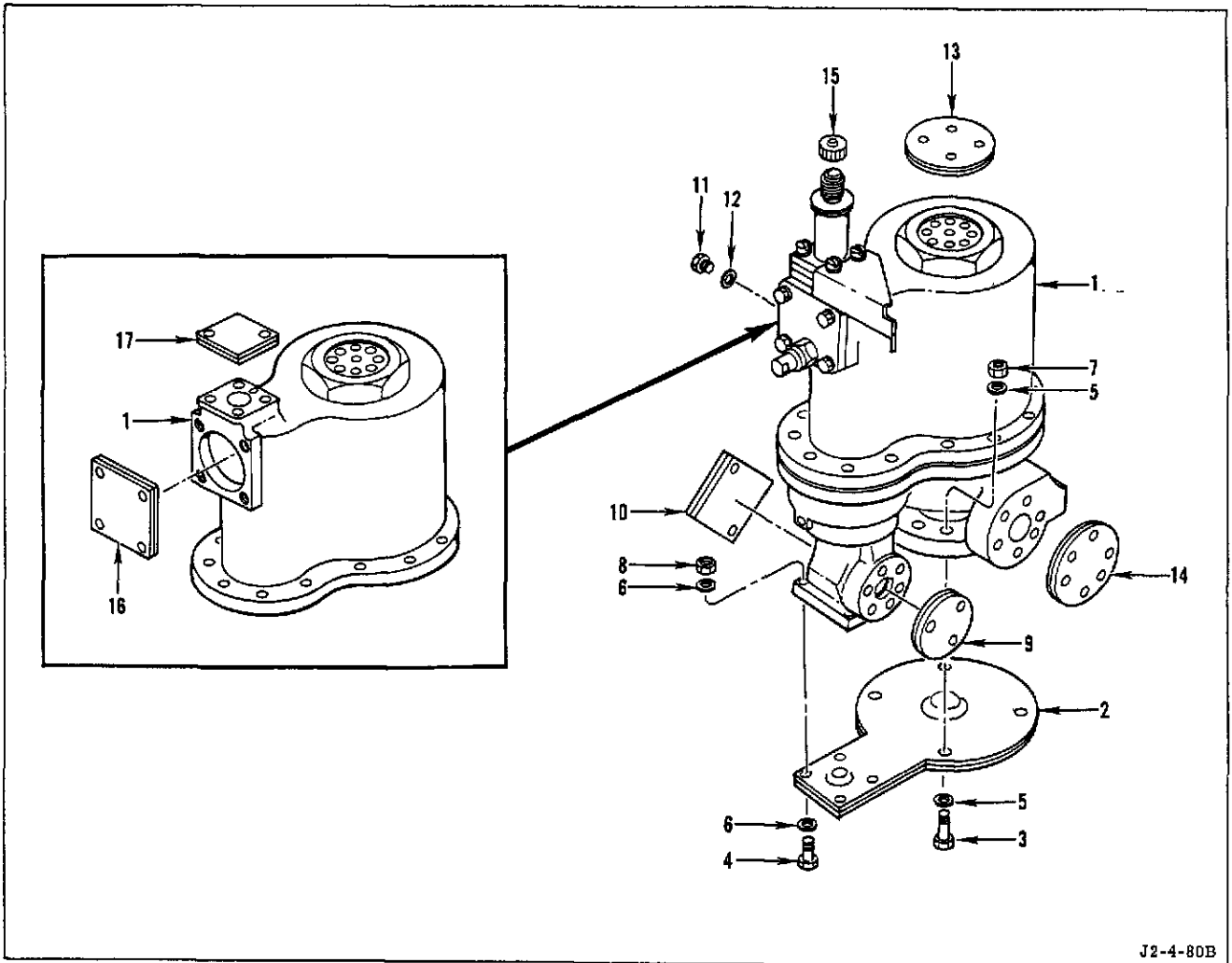


Figure 48. Gas Generator Control Valve Closures

FIG. & INDEX NO	ZONE NO.	PART NUMBER	DESCRIPTION							UNITS PER ASSY.	USABLE ON CODE
			1	2	3	4	5	6	7		
46-		RK395-00001	GAS GENERATOR CONTROL VALVE CLOSURES (See figure 1)							REF	
		RX50018	. GAS GENERATOR CONTROL VALVE CLOSURES							1	
- 1		309040-31	. . VALVE ASSY, Control, gas generator							REF	
- 2		RX20788-11	. . . Cover Assy, Gas generator, control valve							1	
- 3		NAS501-4-7	. . . Bolt (AP)							4	
- 4		NAS501-6-6	. . . Bolt (AP)							4	
- 5		LD153-0010-0010	. . . Washer (AP)							8	
- 6		LD153-0010-0014	. . . Washer (AP)							8	
- 7		AN316C4R	. . . Nut (AP)							4	
- 8		AN316C6R	. . . Nut (AP)							4	
- 9		RX20610-21	. . . Plate Assy							1	
		AN501AD416-10	. . . Screw (AP)							3	
		LD153-0010-0010	. . . Washer (AP)							3	
-10		RX20660-33	. . . Plate Assy							1	
		AN501AD416-10	. . . Screw (AP)							2	
		LD153-0010-0010	. . . Washer (AP)							2	
-11		RX20845-21	. . . Closure Assy, LOX valve							1	
-12		MS29512-04	. . . Packing							1	

Section II

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Component Closures

FIG. & INDEX NO.	ZONE NO.	PART NUMBER	DESCRIPTION							UNITS PER ASSY.	USABLE ON CODE
			1	2	3	4	5	6	7		
48-13		RX20610-171	.	.	.	Plate Assy	.	.	.	1	
		AN501AD416-10	.	.	.	Screw (AP)	.	.	.	4	
		LD153-0010-0010	.	.	.	Washer (AP)	.	.	.	4	
-14		RX20610-181	.	.	.	Plate Assy	.	.	.	1	
		AN501AD416-10	.	.	.	Screw (AP)	.	.	.	3	
		LD153-0010-0010	.	.	.	Washer (AP)	.	.	.	3	
-15		RD265-6002-3005	.	.	.	Cap	.	.	.	1	
-16		RX20660-35	.	.	.	Plate Assy	.	.	.	1	
		AN501AD416-10	.	.	.	Screw (AP)	.	.	.	4	
		LD153-0010-0010	.	.	.	Washer (AP)	.	.	.	4	
-17		RX20660-43	.	.	.	Plate Assy	.	.	.	1	
		AN501AD10-10	.	.	.	Screw (AP)	.	.	.	2	
		LD153-0010-0008	.	.	.	Washer (AP)	.	.	.	2	

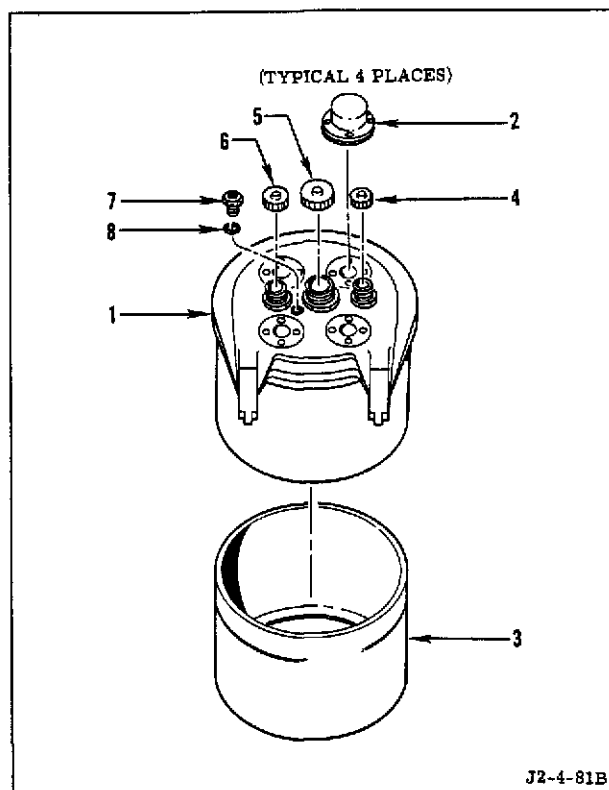
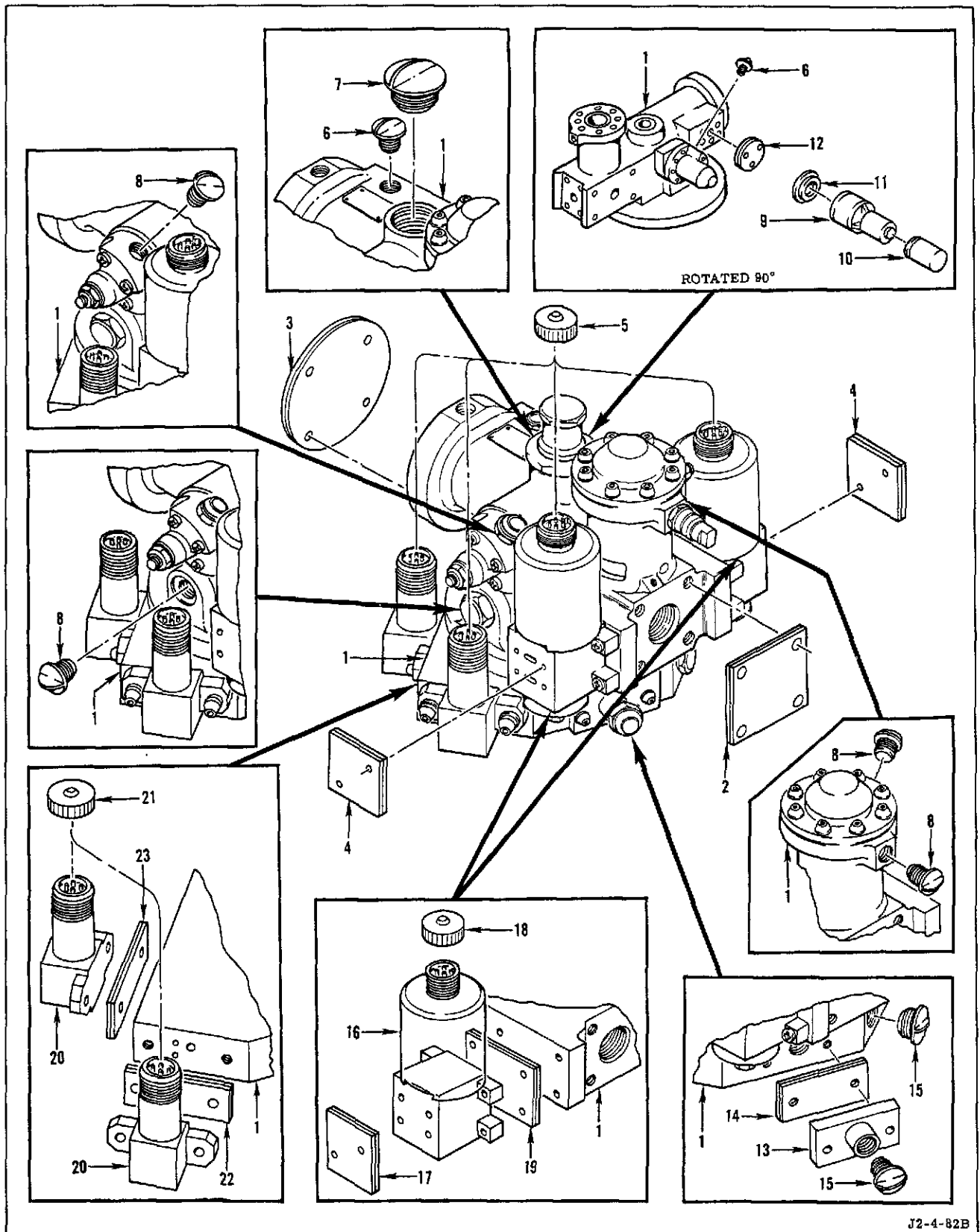


Figure 49. Electrical Control Assembly Closures

FIG. & INDEX NO	ZONE NO	PART NUMBER	DESCRIPTION							UNITS PER ASSY.	USABLE ON CODE
			1	2	3	4	5	6	7		
49-		RK395-00001	ELECTRICAL CONTROL ASSY CLOSURES (See figure 1)							REF	
- 1		RX20191	ELECTRICAL CONTROL ASSY CLOSURES							1	
- 1		502670-181	CONTROL ASSY, Electrical							REF	
- 1		502670-251	CONTROL ASSY, Electrical							REF	
- 1		502670-261	CONTROL ASSY, Electrical							REF	
- 2		RX20739	Closure Assy, Electric controls							4	
		RD111-8001-0301	Screw (Alternate MS35276-263) (AP)							4	
		LD153-0010-0008	Washer (Used with MS35276-263) (AP)							4	
- 3		ST3950107RKL011	Protector Assy, Electrical controls							1	
- 4		RD265-8002-3010	Cap (J3)							1	
- 5		RD265-8002-3012	Cap (J2)							1	
- 6		RD265-8002-3011	Cap (J1)							1	
- 7		AN814-5D	Plug and bleeder							1	
- 8		MS28775-014	Packing							1	



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Figure 50. Helium Regulator (Pneumatic Control Package) Closures

FIG. & INDEX NO.	ZONE NO	PART NUMBER	DESCRIPTION							UNITS PER ASSY.	USABLE ON CODE
			1	2	3	4	5	6	7		
50-		RK395-00001	HELIUM REGULATOR (PNEUMATIC CONTROL PACKAGE) CLOSURES							REF	
			(See figure 1 for REQMT)								
		RX20192	. HELIUM REGULATOR (PNEUMATIC CONTROL PACKAGE) CLOSURES							1	
- 1		558130-511	. . . REGULATOR ASSY, Helium (Pneumatic control package)							REF	
- 1		558130-531	. . . REGULATOR ASSY, Helium (Pneumatic control package)							REF	
- 2		RX20673-31	. . . Plate Assy							1	
- 3		RX20610-81	. . . Plate Assy							1	
- 4		RK395-10072-021	. . . Plate Assy							2	
- 5		RD265-6002-3004	. . . Cap							4	
- 6		RD265-2001-0002	. . . Plug							2	
- 7		RD265-2001-0012	. . . Plug							1	
- 8		RD265-2001-0004	. . . Plug							4	
- 9		551255	. . . VALVE ASSY, Relief, high-pressure, helium							REF	
- 9		558325	. . . VALVE ASSY, Relief, high-pressure, helium							REF	
-10		IT2048	. . . Cover (MFD by 26831) (NHA 558325)							1	
-11		ST3950184RKL003	. . . Cover, Relief valve							1	
-12		RX20610-71	. . . Plate Assy							1	
-13		553935	. . . ADAPTER, Helium regulator							REF	
-14		RX20940	. . . Plate Assy							1	
-15		RD265-2001-0004	. . . Plug							2	
-16		558089	. . . VALVE ASSY, Control, 4-way (Mainstage control valve)							REF	
-17		RK395-10072-021	. . . Plate Assy							2	
-18		RD265-6002-3004	. . . Cap							2	
-19		RX20673-21	. . . Plate Assy							2	
-20		NA5-27273T2	. . . VALVE ASSY, Pneumatic, 3-way, two-position direct solenoid							REF	
			operated (Helium tank emergency vent control valve)								
-21		RD265-6002-3004	. . . Cap							2	
-22		RX20940-11	. . . Plate Assy							1	
-23		RX20940-21	. . . Plate Assy							1	

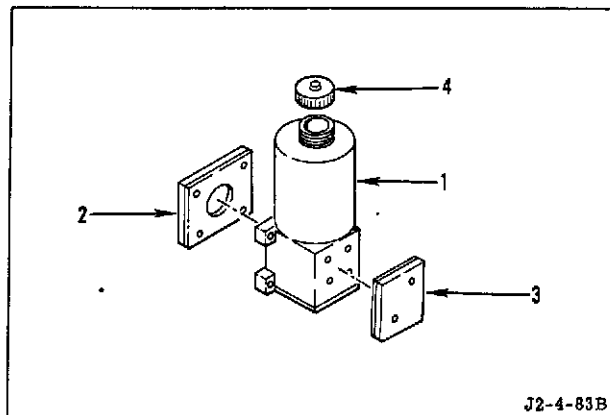
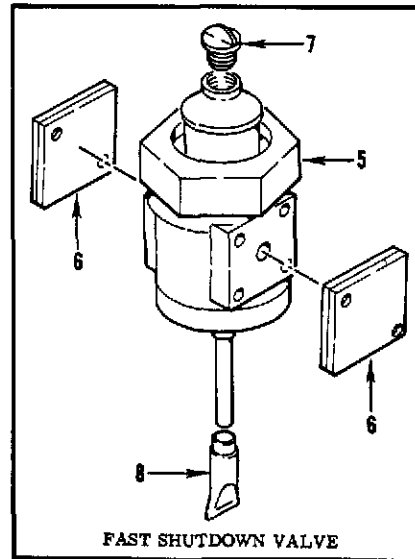
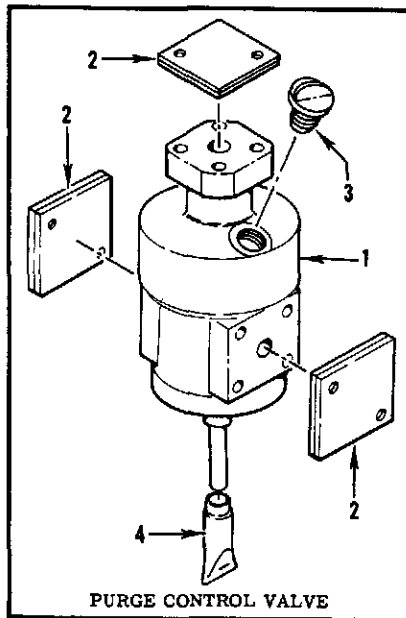


Figure 51. Four-Way Control Valve (Mainstage Control Valve, Ignition-Phase Control Valve, and Start Tank Discharge Control Valve) Closures

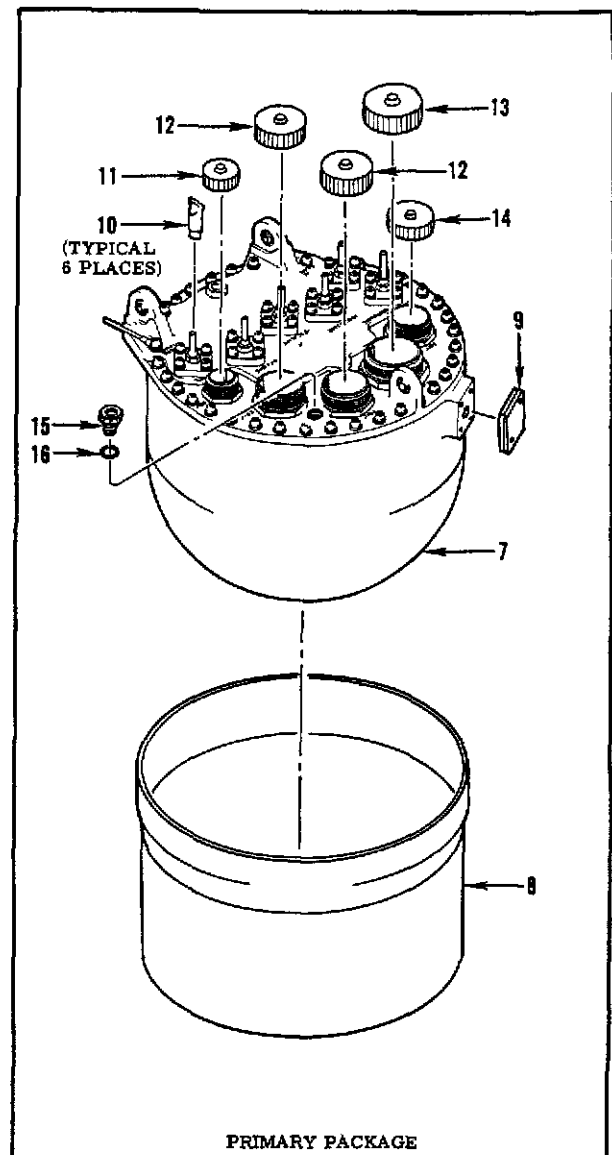
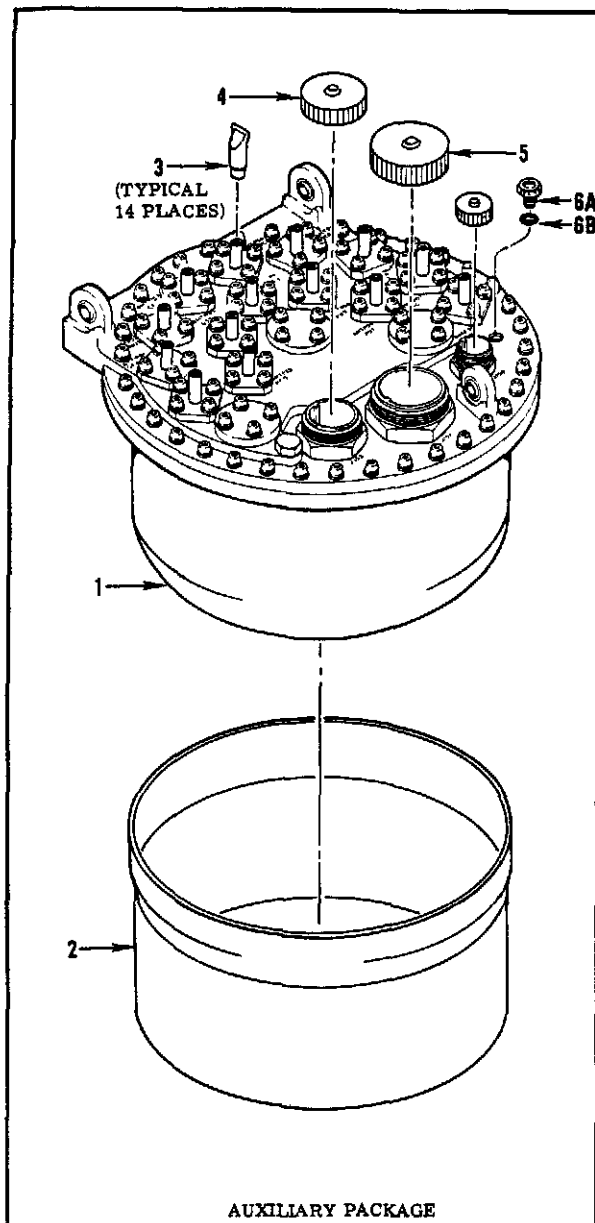
FIG. & INDEX NO.	ZONE NO	PART NUMBER	DESCRIPTION							UNITS PER ASSY.	USABLE ON CODE
			1	2	3	4	5	6	7		
51-		RK395-00001	FOUR-WAY CONTROL VALVE CLOSURES (See figure 1)							REF	
- 1		RX50034	 FOUR-WAY CONTROL VALVE CLOSURES							1	
- 1		555767	 VALVE ASSY, Control, 4-way (Mainstage control valve							REF	
			 ignition-phase control valve, and start tank discharge control valve)								
- 1		558069	 VALVE ASSY, Control, 4-way (Mainstage control valve, ...							REF	
			 ignition-phase control valve, and start tank discharge control valve)								
- 2		RX20673-21	 Plate Assy							1	
		RD111-6001-0302	 Screw (AP)							4	
		MS9356-09	 Nut (AP)							4	
- 3		RK395-10072-021	 Plate Assy							1	
		RD111-6001-0301	 Screw (AP)							2	
- 4		RD265-6002-3004	 Cap							1	



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Figure 52. Purge Control and Fast Shutdown Valves Closures

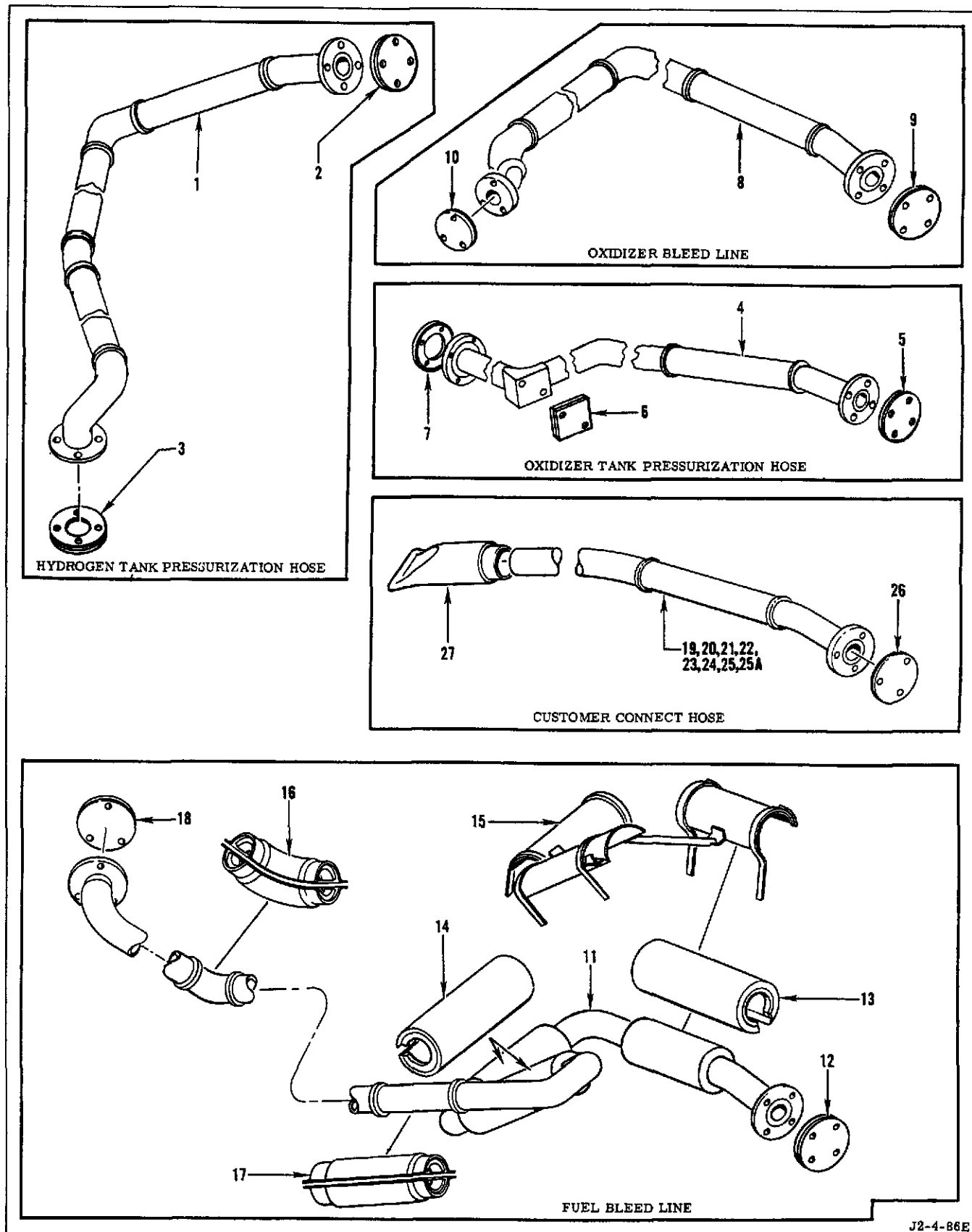
FIG & INDEX NO	ZONE NO	PART NUMBER	DESCRIPTION							UNITS PER ASSY	USABLE ON CODE
			1	2	3	4	5	6	7		
52-		RK395-00001	PURGE CONTROL AND FAST SHUTDOWN VALVES CLOSURES (See figure 1) . . .							REF	
		RX50031	. . . PURGE CONTROL AND FAST SHUTDOWN VALVES CLOSURES . . .							1	
- 1		558126	. . . VALVE ASSY, Purge control, pressure-actuated, normally closed . . .							REF	
- 1		558126-11	. . . VALVE ASSY, Purge control, pressure-actuated, normally closed . . .							REF	
- 2		RX20660-33	. . . Plate Assy . . .							3	
		AN525D416-10	. . . Screw (AP) . . .							2	
		LD153-0011-0014	. . . Washer (AP) . . .							2	
- 3		RD265-2001-0004	. . . Plug . . .							1	
- 4		ST39500440RD005	. . . Cap . . .							1	
- 5		556970	. . . VALVE ASSY, Shutoff, pressure-actuated, normally closed (Fast shutdown)							REF	
- 5		556936	. . . VALVE ASSY, Shutoff, pressure-actuated, normally closed (Fast shutdown)							REF	
- 5		558127-11	. . . VALVE ASSY, Shutoff, pressure-actuated, normally closed (Fast shutdown)							REF	
- 6		RX20660-33	. . . Plate Assy . . .							2	
		AN525D416-10	. . . Screw (AP) . . .							2	
		LD153-0011-0014	. . . Washer (AP) . . .							2	
- 7		RD265-2001-0004	. . . Plug . . .							1	
- 8		ST39500440RD005	. . . Cap . . .							1	



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Figure 53. Flight Instrumentation Auxiliary and Primary Package Closures

FIG. & INDEX NO.	ZONE NO.	PART NUMBER	DESCRIPTION							UNITS PER ASSY.	USABLE ON CODE
			1	2	3	4	5	6	7		
53-		RK395-00001	FLIGHT INSTRUMENTATION AUXILIARY AND PRIMARY PACKAGE CLOSURES (See figure 1)							REF	
- 1		RX50106	. . . FLIGHT INSTRUMENTATION AUXILIARY PACKAGE CLOSURES							1	
- 1		703680	. . . PACKAGE ASSY, Flight instrumentation, auxiliary							REF	
- 1		703680-11	. . . PACKAGE ASSY, Flight instrumentation, auxiliary							REF	
- 1		704090	. . . PACKAGE ASSY, Flight instrumentation, auxiliary							REF	
- 1		704090-21	. . . PACKAGE ASSY, Flight instrumentation, auxiliary							REF	
- 1		704090-91	. . . PACKAGE ASSY, Flight instrumentation, auxiliary							REF	
- 1		704090-101	. . . PACKAGE ASSY, Flight instrumentation, auxiliary							REF	
- 1		704090-131	. . . PACKAGE ASSY, Flight instrumentation, auxiliary							REF	
- 1		704090-171	. . . PACKAGE ASSY, Flight instrumentation, auxiliary							REF	
- 2		ST3950107RKL001	. . . Protector Assy, Electrical controls							1	
- 3		ST39500440RK005	. . . Cap							14	
- 4		RD265-6002-3012	. . . Cap							1	
- 5		RD265-6002-3012	. . . Cap							1	
- 6		RD265-6002-3006	. . . Cap							1	
- 6A		AN814-5D	. . . Plug and bleeder							1	
- 6B		MS28775-014	. . . Packing							1	
- 7		RX50102	. . . FLIGHT INSTRUMENTATION PRIMARY PACKAGE CLOSURES							1	
- 7		703685	. . . PACKAGE ASSY, Flight instrumentation, primary							REF	
- 7		703685-11	. . . PACKAGE ASSY, Flight instrumentation, primary							REF	
- 7		704095	. . . PACKAGE ASSY, Flight instrumentation, primary							REF	
- 7		704095-21	. . . PACKAGE ASSY, Flight instrumentation, primary							REF	
- 7		704095-31	. . . PACKAGE ASSY, Flight instrumentation, primary							REF	
- 7		704095-51	. . . PACKAGE ASSY, Flight instrumentation, primary							REF	
- 7		704095-81	. . . PACKAGE ASSY, Flight instrumentation, primary							REF	
- 8		ST3950107RKL001	. . . Protector Assy, Electrical controls							1	
- 9		RX20660-33	. . . Plate Assy							1	
		AN501AD416-10	. . . Screw (AP)							2	
		LD153-0010-0010	. . . Washer (AP)							2	
-10		ST39500440RK005	. . . Cap							6	
-11		RD265-6002-3006	. . . Cap							1	
-12		RD265-6002-3010	. . . Cap							2	
-13		RD265-6002-3012	. . . Cap							1	
-14		RD265-6002-3008	. . . Cap							1	
-15		AN814-5D	. . . Plug and bleeder							1	
-16		MS28775-014	. . . Packing							1	



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Figure 54. Customer Connect Lines Closures

FIG. & INDEX NO.	ZONE NO.	PART NUMBER	DESCRIPTION							UNITS PER ASSY.	USABLE ON CODE
			1	2	3	4	5	6	7		
54-		RK395-00001	CUSTOMER CONNECT LINES CLOSURES (See figure 1)							REF	
- 1		RK395-00016	CUSTOMER CONNECT LINES CLOSURES							1	
- 1		NA5-26954	HOSE ASSY, Hydrogen tank pressurization							REF	
- 1		NA5-260124	HOSE ASSY, Hydrogen tank pressurization							REF	
- 2		NA5-260164	HOSE ASSY, Hydrogen tank pressurization							REF	
		ST3950118RKL001 (a)	Cover Assy, Protective (Alternate ST3950009RKL001)							1	
		RD111-6001-0303	Screw (AP)							4	
		MS9356-09	Nut (AP)							4	
- 3		RX20621-21 (a)	Closure Assy, Preservation and packaging, heat exchanger GOX discharge							1	
		RD111-6001-0402	Screw (AP)							4	
		AN316C4R	Nut (AP)							4	
- 4		106645-11	HOSE ASSY, Oxidizer tank pressurization							REF	
- 5		ST3950118RKL001 (a)	Cover Assy, Protective (Alternate ST3950009RKL001)							1	
		RD111-6001-0403	Screw (AP)							4	
		AN316C4R	Nut (AP)							4	
- 6		RX20660-33 (a)	Plate Assy							1	
		RD111-6001-0401	Screw (AP)							2	
- 7		RX20621 (a)	Closure Assy, Preservation and packaging, heat exchanger GOX discharge							1	
		RD111-6001-0303	Screw (AP)							4	
		MS9356-09	Nut (AP)							4	
- 8		106626	LINE ASSY, Oxidizer bleed							REF	
- 9		ST3950118RKL011 (a)	Cover Assy, Protective (Alternate ST3950009RKL001)							1	
		RD111-6001-0403	Screw (Alternate MS35276-285) (AP)							4	
		LD153-0010-0010	Washer (Used with MS35276-285) (AP)							8	
		MS9356-09	Nut (AP)							4	
-10		RX20058-11 (a)	Closure Assy, Preservation and packaging, oxidizer bleed line							1	
		RD111-6001-0402	Screw (AP)							3	
		AN316C4R	Nut (AP)							3	
-11		106627	LINE ASSY, Fuel bleed							REF	
-12		ST3950118RKL011 (a)	Cover Assy, Protective (Alternate ST3950009RKL001)							1	
		RD111-6001-0403	Screw (AP)							4	
		AN316C4R	Nut (AP)							4	
-13		RK395-40007-211	Cover Assy, Fuel bleed line bellows							1	
-14		RK395-40007-201	Cover Assy, Fuel bleed line bellows							2	
-15		RK395-44083	Support Assy, Line							1	
		NAS501-7-8	Bolt (AP)							1	
		LD153-0010-0016	Washer (AP)							2	
		MS9356-13	Nut (AP)							1	
-16		ST3950032RKL001	Closure Assy, Half curved							2	
		2600	Stud (MFD by 71286) (AP)							4	
		2600LW	Washer (MFD by 71286) (AP)							4	
		212-12	Receptacle (MFD by 71286) (AP)							4	
-17		ST3950031RKL001	Closure Assy, Half							2	
		2600	Stud (MFD by 71286) (AP)							3	
		2600LW	Washer (MFD by 71286) (AP)							3	
		212-12	Receptacle (MFD by 71286) (AP)							3	
-18		RX20058-11 (a)	Closure Assy, Preservation and packaging, turbine inlet							1	
		RD111-6001-0402	Screw (AP)							3	
		AN316C4R	Nut (AP)							3	
-19		NA5-260060	HOSE ASSY, Fuel pump drain							REF	
-19		NA5-260140	HOSE ASSY, Fuel pump drain							REF	
-19		404639	HOSE ASSY, Drain, fuel pump							REF	
-20		NA5-26944	HOSE ASSY, Turbopump purge							REF	
-21		NA5-26945	HOSE ASSY, Start tank fill							REF	
-21		NA5-260139	HOSE ASSY, Start tank fill							REF	
-22		NA5-260057	HOSE ASSY, Start tank vent valve control							REF	
-23		NA5-260058	HOSE ASSY, Helium tank fill							REF	
-24		NA5-260059	HOSE ASSY, Start tank vent and relief valve drain							REF	
-24		NA5-260147	HOSE ASSY, Start tank vent and relief valve drain							REF	
-25		NA5-260056	HOSE ASSY, Thrust chamber jacket purge							REF	
-25		NA5-260125	HOSE ASSY, Thrust chamber jacket purge							REF	
-25A		NA5-260061	HOSE ASSY, Oxidizer turbopump seal cavity drain							REF	
-26		ST3950118RKL021 (a)	Cover Assy, Protective (Alternate ST3950009RKL001)							7	
		RD111-6001-0403	Screw (AP)							3	
		AN316C4R	Nut (AP)							3	
-27		ST39500440RK009	Cap							7	

(a) See figure 55A for Alternate Closure Installation on line flanges
6 inches or less.

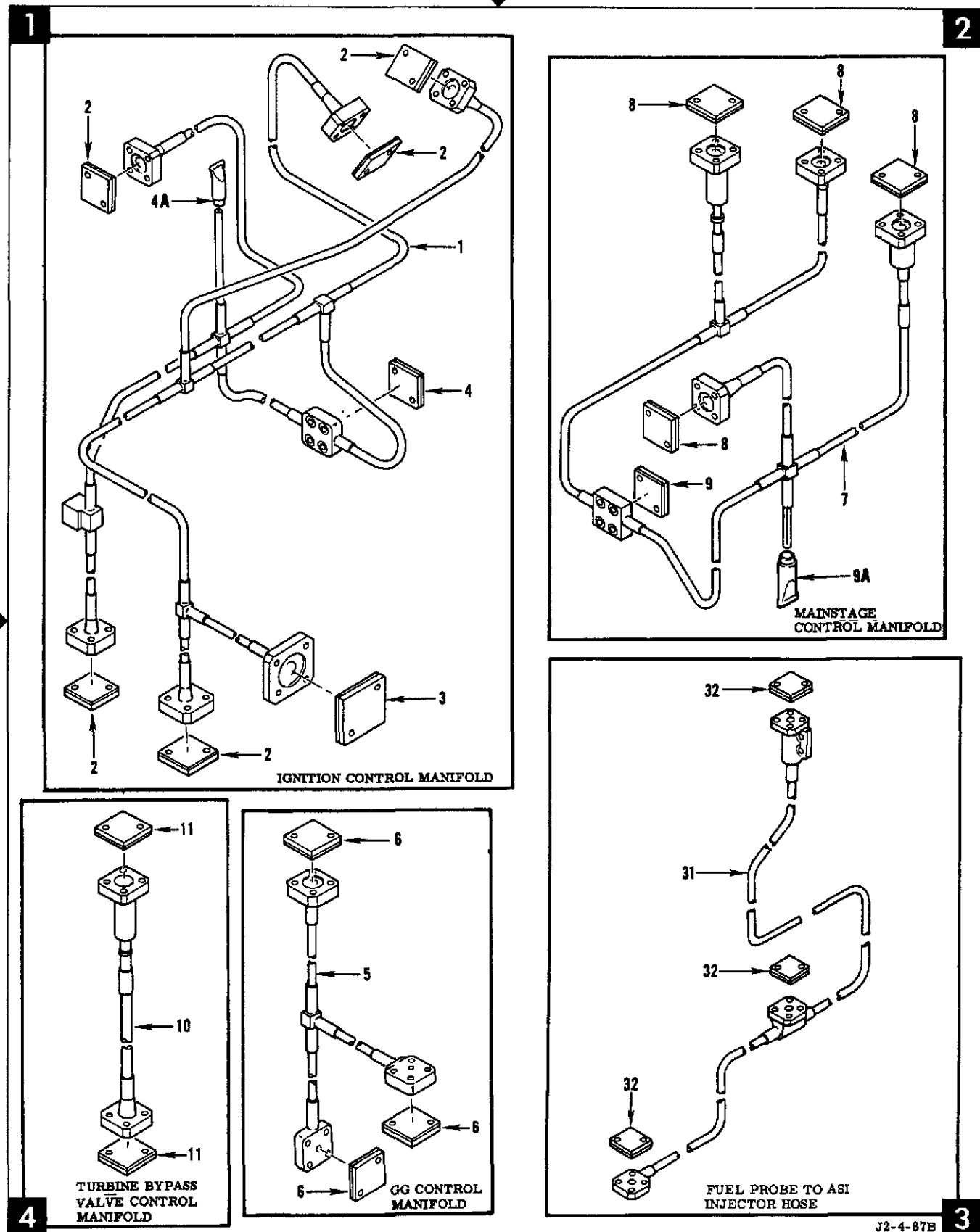


Figure 55. Manifold and Tube Assembly Closures (Sheet 1 of 2)

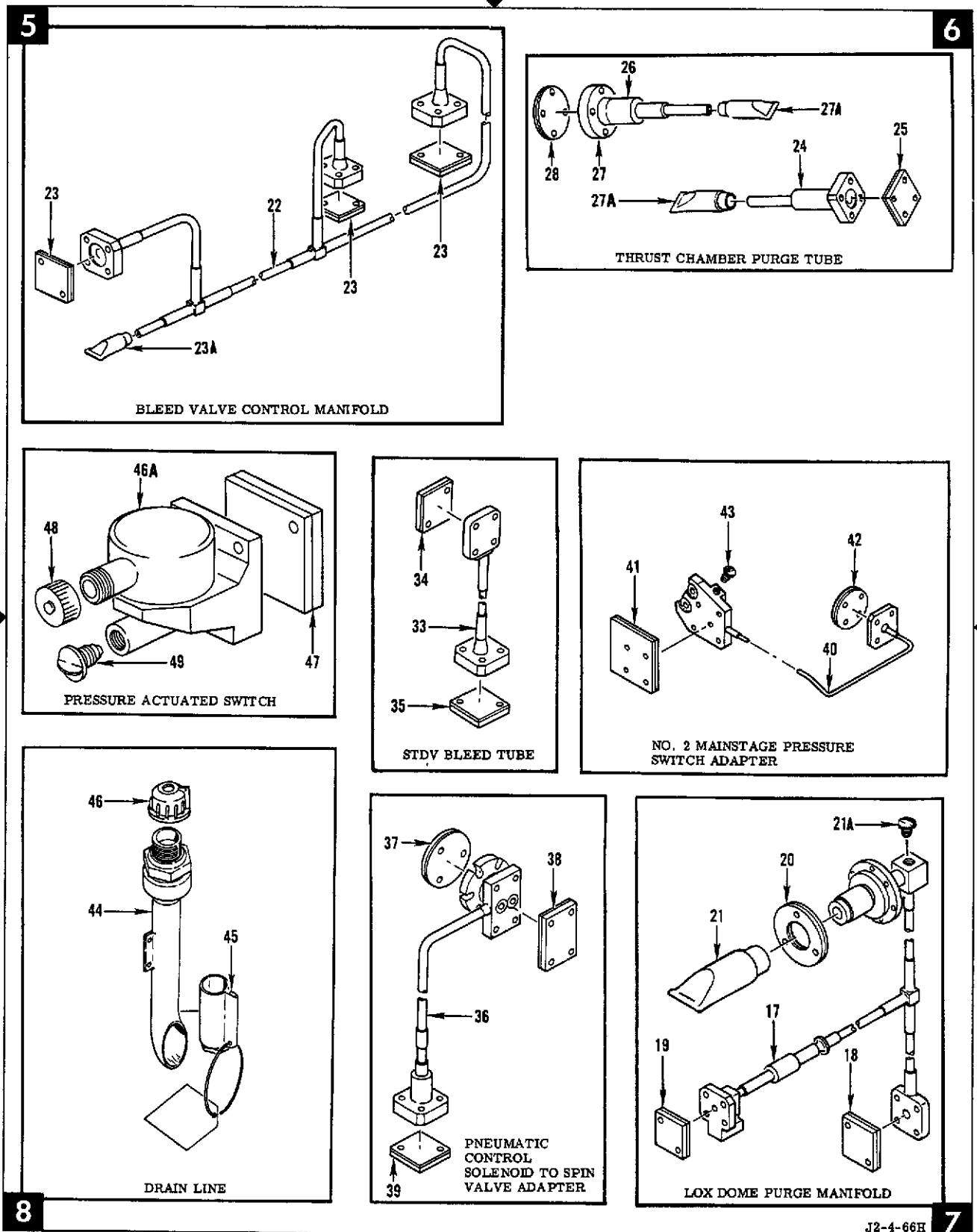


Figure 55. Manifold and Tube Assembly Closures (Sheet 2 of 2)

Component Closures

FIG & INDEX NO.	ZONE NO.	PART NUMBER	DESCRIPTION	UNITS PER ASSY.	USABLE ON CODE
			1 2 3 4 5 6 7		
55-		RK395-00001	MANIFOLD AND TUBE CLOSURES (See figure 1 for REQMT)	REF	REF
		RK395-00068	MANIFOLD AND TUBE CLOSURES	1	
		RK395-00084	MANIFOLD AND TUBE CLOSURES	1	
- 1	1	557880	MANIFOLD ASSY, Ignition control	REF	REF
- 1	1	557915	MANIFOLD ASSY, Ignition control	REF	REF
- 1	1	557915-21	MANIFOLD ASSY, Ignition control	REF	REF
- 2	1, 4	RX20660-33 (a)	Plate Assy	5	5
		NAS501-4-13	Bolt (AP)	2	
		NAS501-4-13A	Bolt (AP)		2
		LD153-0010-0010	Washer (AP)	4	4
		AN121527	Nut (AP)	2	2
- 3	4	RX20660-55 (a)	Plate Assy	1	1
		NAS501-4-12	Bolt (AP)	2	
		NAS501-4-12A	Bolt (AP)		2
		LD153-0010-0010	Washer (AP)	4	4
		AN121527	Nut (AP)	2	2
- 4	1	RX20673-71	Plate Assy	1	1
		NAS501-3-12	Bolt (AP)	2	
		NAS501-3-12A	Bolt (AP)		2
		LD153-0010-0008	Washer (AP)	4	4
		AN121526	Nut (AP)	2	2
- 4A	1	ST39500440RK005	Cap	1	
- 5	4	557881	MANIFOLD ASSY, Gas generator control	REF	REF
- 5	4	558112	MANIFOLD ASSY, Gas generator control	REF	REF
- 5	4	557904	MANIFOLD ASSY, Gas generator control	REF	REF
- 6	4	RX20660-33 (a)	Plate Assy	3	3
		NAS501-4-13	Bolt (AP)	2	
		NAS501-4-13A	Bolt (AP)		2
		LD153-0010-0010	Washer (AP)	4	4
		MS9356-10	Nut (AP)	2	2
- 7	2	557884	MANIFOLD ASSY, Mainstage control	REF	REF
- 7	2	558109	MANIFOLD ASSY, Mainstage control	REF	REF
- 7	2	558109-21	MANIFOLD ASSY, Mainstage control	REF	REF
- 8	2	RX20660-33 (a)	Plate Assy	4	4
		NAS501-4-13	Bolt (AP)	2	
		NAS501-4-13A	Bolt (AP)		2
		LD153-0010-0010	Washer (AP)	4	4
		MS9356-10	Nut (AP)	2	2
- 9	2	RX20673-71	Plate Assy	1	1
		NAS501-3-12	Bolt (AP)	2	
		NAS501-3-12A	Bolt (AP)		2
		LD153-0010-0008	Washer (AP)	4	4
		MS9356-09	Nut (AP)	2	2
- 9A	2	ST39500440RK005	Cap	1	
- 10	4	557889	MANIFOLD ASSY, Control turbine by-pass valve	REF	REF
- 10	4	557917	MANIFOLD ASSY, Control turbine by-pass valve	REF	REF
- 10	4	558107	MANIFOLD ASSY, Control, turbine by-pass valve	REF	REF
- 10	4	558107-11	MANIFOLD ASSY, Control, turbine by-pass valve	REF	REF
- 11	4	RX20660-33 (a)	Plate Assy	2	2
		NAS501-4-13	Bolt (AP)	2	
		NAS501-4-13A	Bolt (AP)		2
		LD153-0010-0010	Washer (AP)	4	4
		MS9356-10	Nut (AP)	2	2
- 12 THRU					
- 16	7	DELETED			
- 17	7	557918	MANIFOLD ASSY, Purge, oxidizer dome and gas generator oxidizer cavity	REF	GDJ
- 17	7	557918-11	MANIFOLD ASSY, Purge, oxidizer dome and gas generator oxidizer cavity	REF	MMA
- 18	7	RX20660-33 (a)	Plate Assy	1	
		NAS501-4-13A	Bolt (AP)	2	
		LD153-0010-0010	Washer (AP)	4	
		MS9356-10	Nut (AP)	2	
- 19	7	RX20660-25 (a)	Plate Assy	1	
		NAS501-3-13A	Bolt (AP)	2	
		LD153-0010-0008	Washer (AP)	4	
		MS9356-09	Nut (AP)	2	
- 20	7	RK395-10025-011	Plate Assy	1	
		NAS501-4-7A	Bolt (AP)	3	
		LD153-0010-0010	Washer (AP)	6	
		MS9356-10	Nut (AP)	3	
- 21	7	ST39500440RK027	Cap	1	
- 21A	7	RD265-2001-0004	Plug	1	
- 22	5	558146	MANIFOLD ASSY, Bleed valve control	REF	REF
- 22	5	557902	MANIFOLD ASSY, Bleed valve control	REF	REF
- 23	5	RX20660-33 (a)	Plate Assy	3	3
(a) See figure 55A for Alternate Closure Installation on line flanges 6 inches or less.					

FIG. & INDEX NO.	ZONE NO.	PART NUMBER	DESCRIPTION							UNITS PER ASSY	USABLE ON CODE
			1	2	3	4	5	6	7		
55-		NAS501-4-13	.	.	.	Bolt (AP)	.	.	.	2	
		NAS501-4-13A	.	.	.	Bolt (AP)	.	.	.	2	
		LD153-0010-0010	.	.	.	Washer (AP)	.	.	.	4	4
		MS9356-10	.	.	.	Nut (AP)	.	.	.	2	2
-23A	5	ST39500440RK005	.	.	.	Cap	.	.	.	1	
-24	6	106861	.	.	.	TUBE ASSY, Purge, thrust chamber	.	.	.	REF	
-24	6	106886	.	.	.	TUBE ASSY, Insulated, thrust chamber purge	.	.	.	REF	
-24	6	106879-11	.	.	.	TUBE ASSY, Purge, thrust chamber	.	.	.	REF	
-25	6	RX20660-27	(a)	.	.	Plate Assy	.	.	.	1	
		NAS501-4-13	.	.	.	Bolt (AP)	.	.	.	2	
		LD153-0010-0010	.	.	.	Washer (AP)	.	.	.	4	
		MS9356-10	.	.	.	Nut (AP)	.	.	.	2	
-26	6	556450	.	.	.	VALVE ASSY, Check, fuel jacket, purge	.	.	.	1	
-27	6	554793-5	.	.	.	Ring, Pneumatic flange retaining	.	.	.	REF	
-27A	6	ST39500440RK013	.	.	.	Cap	.	.	.	2	
-28	6	RX20660-27	(a)	.	.	Plate Assy	.	.	.	1	
		NAS501-4-13	.	.	.	Bolt (AP)	.	.	.	2	
		LD153-0010-0010	.	.	.	Washer (AP)	.	.	.	4	
		MS9356-10	.	.	.	Nut (AP)	.	.	.	2	
-29		DELETED									
-30		DELETED									
-31	3	209732-71	.	.	.	HOSE ASSY, Fuel probe to ASI injector	.	.	.	REF	
-32	3	RX20660-61	(a)	.	.	Plate Assy	.	.	.	3	
		NAS501-4-12	.	.	.	Bolt (AP)	.	.	.	8	
		LD153-0010-0010	.	.	.	Washer (AP)	.	.	.	16	
		MS9356-10	.	.	.	Nut (AP)	.	.	.	8	
-33	8	557437	.	.	.	TUBE ASSY, Bleed, discharge valve, start tank	.	.	.	REF	
-33	8	557437-11	.	.	.	TUBE ASSY, Bleed, discharge valve, start tank	.	.	.	REF	
-34	5	RX20660-33	(a)	.	.	Plate Assy	.	.	.	1	
-35	8	RX20660-27	(a)	.	.	Plate Assy	.	.	.	1	
		NAS501-4-13	.	.	.	Bolt (AP)	.	.	.	2	
		LD153-0010-0010	.	.	.	Washer (AP)	.	.	.	4	
		MS9356-10	.	.	.	Nut (AP)	.	.	.	2	
-36	8	557438	.	.	.	ADAPTER ASSY, Pneumatic, control solenoid to spin valve	.	.	.	REF	
-37	8	RX20610-21	(a)	.	.	Plate Assy	.	.	.	1	
		AN501AD10-18	.	.	.	Screw (AP)	.	.	.	3	
		LD153-0010-0008	.	.	.	Washer (AP)	.	.	.	6	
		MS9356-09	.	.	.	Nut (AP)	.	.	.	3	
-38	7	RX20673-21	(a)	.	.	Plate Assy	.	.	.	1	
		AN501AD10-18	.	.	.	Screw (AP)	.	.	.	4	
		LD153-0010-0008	.	.	.	Washer (AP)	.	.	.	4	
-39	8	RX20660-33	(a)	.	.	Plate Assy	.	.	.	1	
		NAS501-4-13	.	.	.	Bolt (AP)	.	.	.	2	
		LD153-0010-0010	.	.	.	Washer (AP)	.	.	.	4	
		MS9356-10	.	.	.	Nut (AP)	.	.	.	2	
-40	7	558101	.	.	.	ADAPTER ASSY, Pressure switch, mainstage	.	.	.	REF	
-41	7	ST3950101RK001	(a)	.	.	Plate Assy, Manifold	.	.	.	1	
		AN501AD416-12	.	.	.	Screw (AP)	.	.	.	4	
		LD153-0010-0010	.	.	.	Washer (AP)	.	.	.	4	
-42	7	RX20610-81	(a)	.	.	Plate Assy	.	.	.	1	
		NAS501-4-13A	.	.	.	Bolt (AP)	.	.	.	4	
		LD153-0010-0010	.	.	.	Washer (AP)	.	.	.	8	
		MS9356-10	.	.	.	Nut (AP)	.	.	.	4	
-43	6	RD265-2001-0002	.	.	.	Plug	.	.	.	1	
		ST3950269RKL	.	.	.	BURST DIAPHRAGM CLOSURES	.	.	.	1	
-44	8	652038	.	.	.	LINE ASSY, Drain	.	.	.	REF	REF
-44	8	409184	.	.	.	LINE ASSY, Drain, primary seal, oxidizer pump (Welded)	.	.	.	REF	REF
-45	8	ST3950263RKL001	.	.	.	CAP ASSY, Burst diaphragm	.	.	.	1	1
-46	8	ST39500400RK018	.	.	.	Cap	.	.	.	1	
-46A	5	308390	.	.	.	SWITCH ASSY, Pressure-actuated, calibrationable (Mainstage OK pressure switch)	.	.	.	REF	
-47	8	ST39500344RK021	.	.	.	Plate Assy	.	.	.	1	
		RD111-6001-0402	.	.	.	Bolt (AP)	.	.	.	2	
		RD111-6001-0403	.	.	.	Bolt (AP)	.	.	.	2	
		LD153-0010-0010	.	.	.	Washer (AP)	.	.	.	2	
		MS9356-10	.	.	.	Nut (AP)	.	.	.	4	
-48	5	RD265-8002-3004	.	.	.	Cap	.	.	.	1	
-49	8	RD265-2001-0004	.	.	.	Plug	.	.	.	1	

(a) See figure 55A for Alternate Closure Installation on line flanges
6 inches or less.

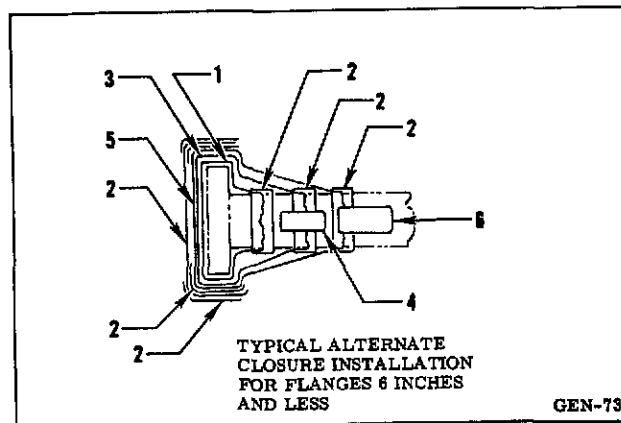


Figure 55A. Alternate Closure Installation

FIG. & INDEX NO.	ZONE NO.	PART NUMBER	DESCRIPTION							UNITS PER ASSY	USABLE ON CODE
			1	2	3	4	5	6	7		
55A-		RD395-00001	ALTERNATE CLOSURE INSTALLATION (See figure 1)							REF	
- 1		33C	. Acclar Film 0.002 minimum thickness) (MFD by 70308)							AR	
- 2		RB0195-002	. Tape							AR	
- 3		Bag	. POLYETHYLENE (First application) (4 Mil. minimum thickness)							1	
- 4		RD170-8007-XXXX	. PLATE, Inspection tamper-proof seal instruction (Certificate of cleanness)							1	
- 5		Bag	. POLYETHYLENE (Second application) (4 Mil. minimum thickness)							1	
- 6		RD170-8006-XXXX	. PLATE, Tamper-proof seal instruction (Fluid system identification label)							1	

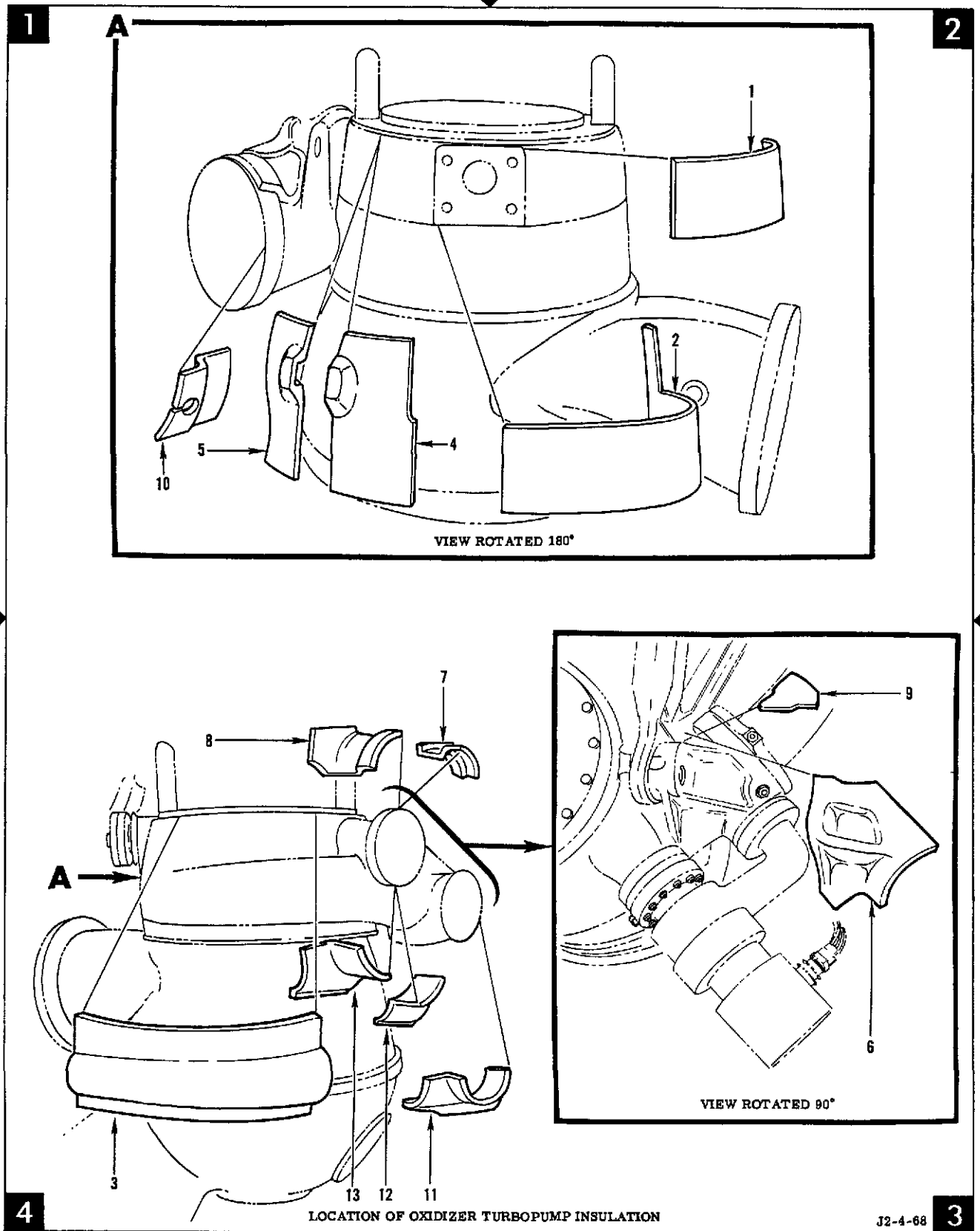
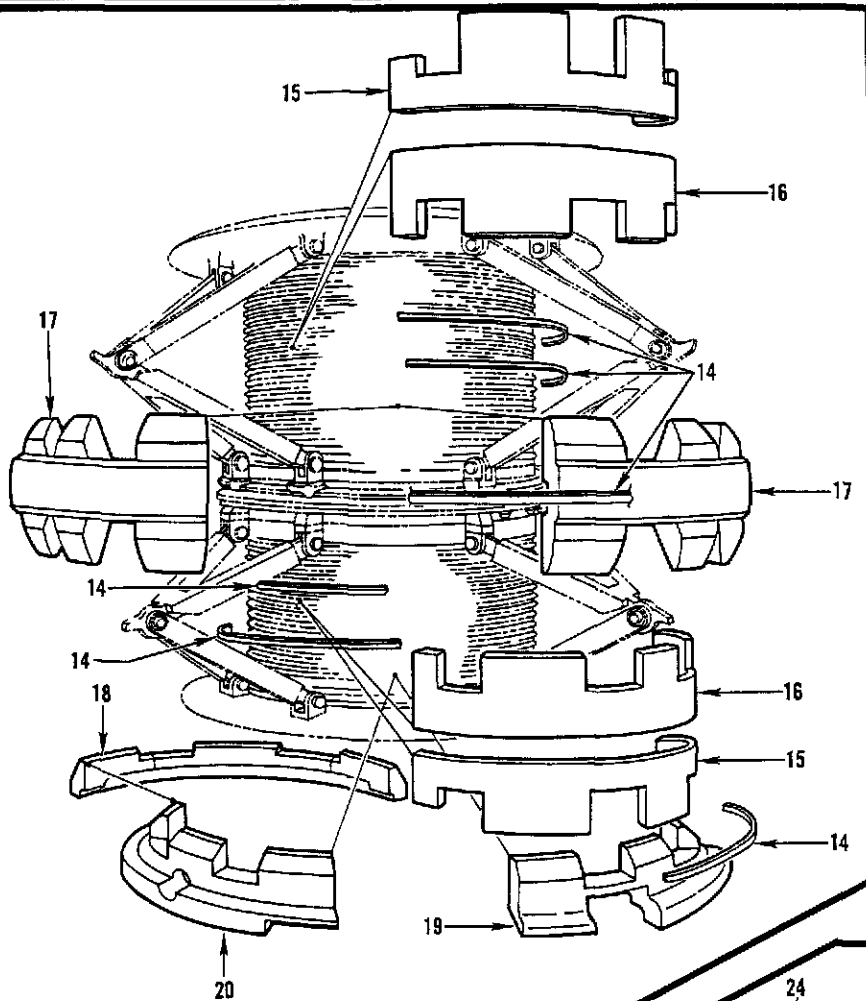
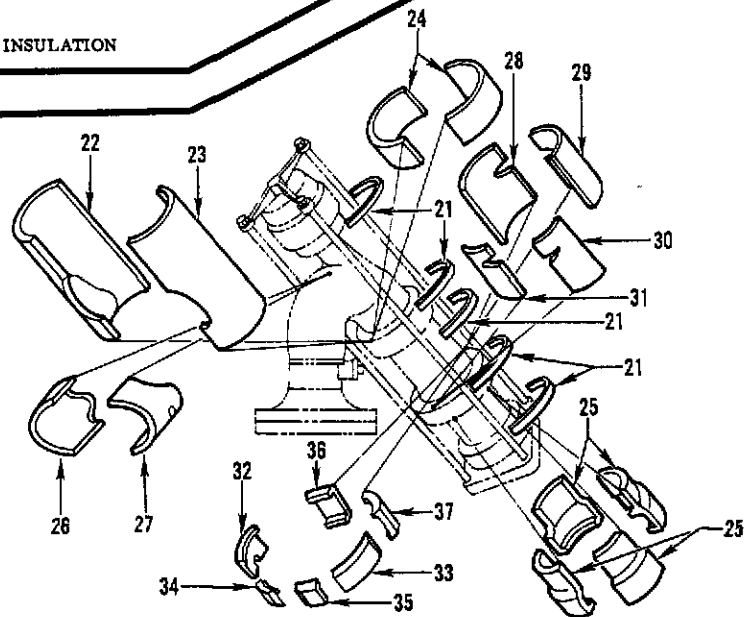


Figure 56. Component Thermal Insulation (Sheet 1 of 5)



LOCATION OF OXIDIZER INLET DUCT INSULATION



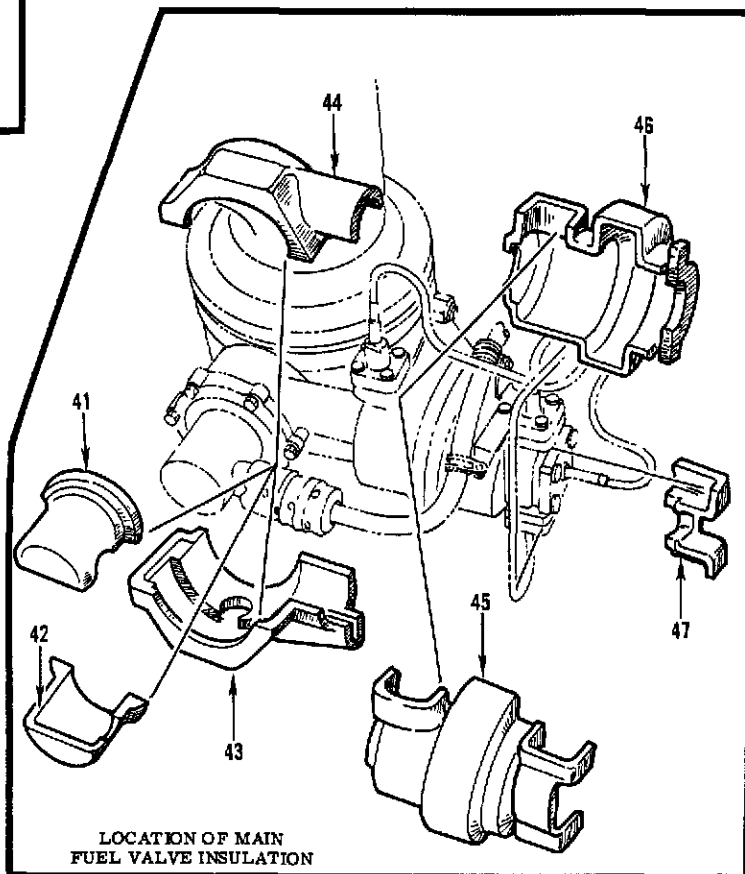
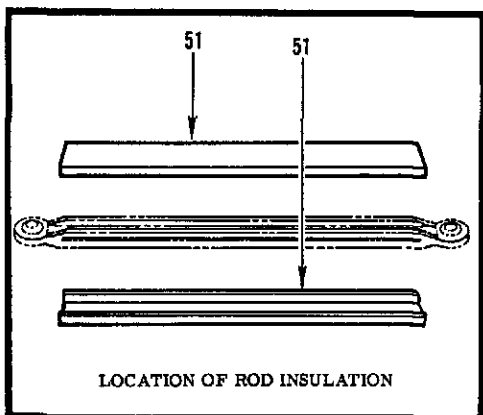
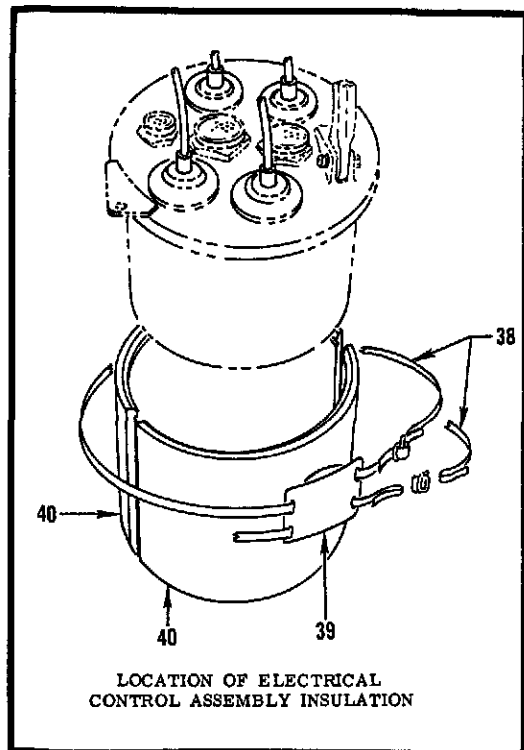
LOCATION OF OXIDIZER HIGH PRESSURE DUCT INSULATION

J2-4-69

Figure 56. Component Thermal Insulation (Sheet 2 of 5)

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12

J2-4-70B

11

Figure 56. Component Thermal Insulation (Sheet 3 of 5)

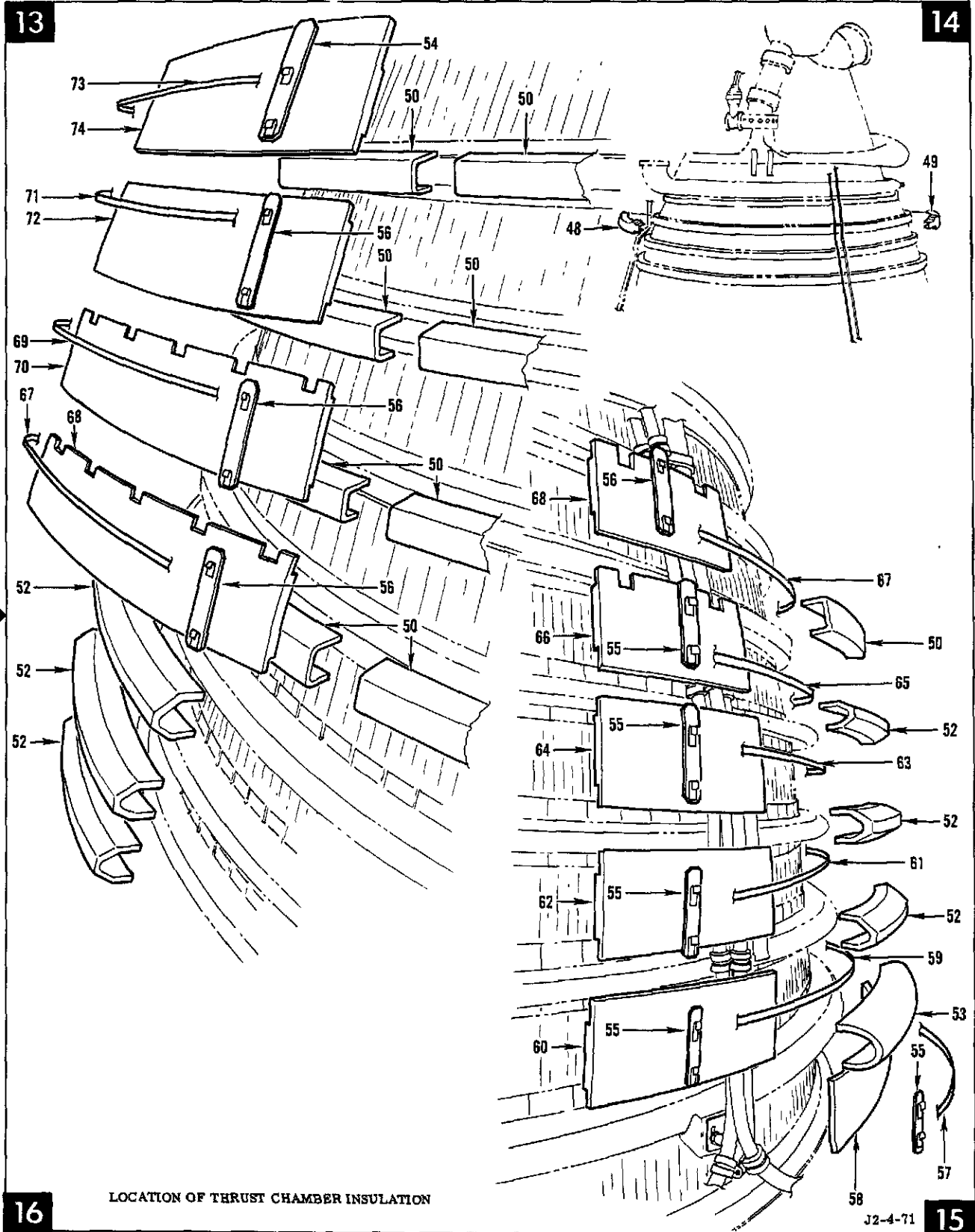
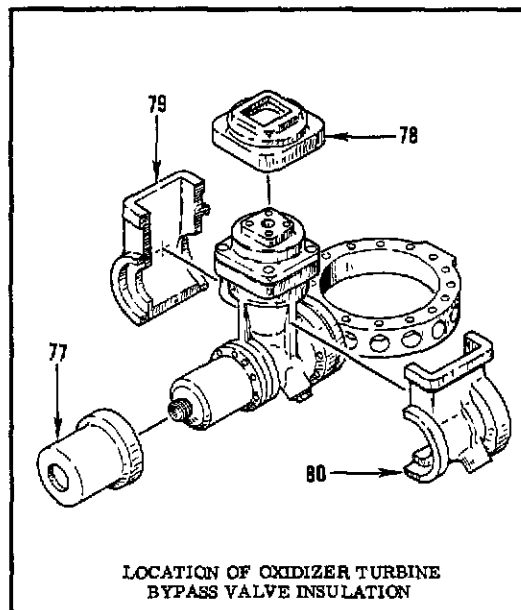
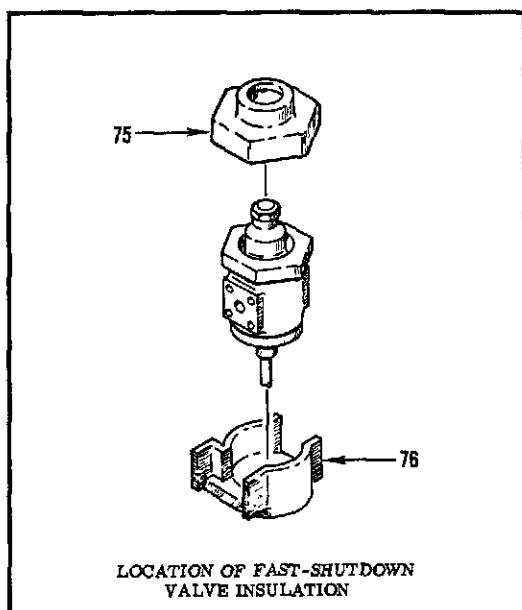


Figure 56. Component Thermal Insulation (Sheet 4 of 5)

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J2-4-90B

19

Figure 56. Component Thermal Insulation (Sheet 5 of 5)

FIG. & INDEX NO.	ZONE NO.	PART NUMBER	DESCRIPTION							UNITS PER ASSY			USABLE ON CODE
			1	2	3	4	5	6	7	REF	REF	REF	
56-		406851	COMPONENT THERMAL INSULATION (See figure 1, index 3A)							REF	REF	REF	
		18-146001	. OXIDIZER SYSTEM INSULATION (Outboard engines incorporating							1			
			MD251 change) (SI)										
		18-146001-10	. OXIDIZER SYSTEM INSULATION (Center engines incorporating								1		
			MD252 change) (SII)										
- 1	2	146002-5	. . . INSULATOR, Oxidizer pump volute							1	1		
- 2	2	146002-3	. . . INSULATOR, Oxidizer pump volute							1	1		
- 3	4	146002-27	. . . INSULATOR, Oxidizer pump volute							1	1		
- 4	1	146002-29	. . . INSULATOR, Oxidizer pump volute							1	1		
- 5	1	146002-33	. . . INSULATOR, Oxidizer pump volute							1	1		
- 6	4	146002-25	. . . INSULATOR, Oxidizer pump volute							1	1		
- 7	4	146002-7	. . . INSULATOR, Oxidizer pump volute							1	1		
- 8	4	146002-13	. . . INSULATOR, Oxidizer pump volute							1	1		
- 9	3	146002-23	. . . INSULATOR, Oxidizer pump volute							1	1		
-10	1	146002-19	. . . INSULATOR, Oxidizer pump volute							1	1		
-11	1	146002-9	. . . INSULATOR, Oxidizer pump volute							1	1		
-12	4	146002-15	. . . INSULATOR, Oxidizer pump volute							1	1		
-13	4	146002-17	. . . INSULATOR, Oxidizer pump volute							1	1		
-14	5, 6, 7	209744-27	. . . WEBBING, Tie down, insulator (Straps)							6			
-15	5, 6	146003-3	. . . INSULATOR, Oxidizer inlet duct							4			
-16	6	146003-5	. . . INSULATOR, Oxidizer inlet duct							4			
-17	5, 6	146004	. . . INSULATOR, Oxidizer inlet duct							3			
-18	5	146005	. . . INSULATOR, Oxidizer inlet duct							1			
-19	8	146005-5	. . . INSULATOR, Oxidizer inlet duct							1			
-20	8	146005-3	. . . INSULATOR, Oxidizer inlet duct							1			
-21	7	209744-25	. . . WEBBING, Tie down, insulator (Straps)							7	7		
-22	8	146016-1	. . . INSULATOR, Oxidizer, high pressure duct							1	1		
-23	7	146016-2	. . . INSULATOR, Oxidizer, high pressure duct							1	1		
-24	7	146011	. . . INSULATOR, Oxidizer, high pressure duct							2	2		
-25	7	146007	. . . INSULATOR, Oxidizer, high pressure duct							4	4		
-26	8	146019-1	. . . INSULATOR, Oxidizer, high pressure duct							1	1		
-27	8	146019-2	. . . INSULATOR, Oxidizer, high pressure duct							1	1		
-28	7	146013-1	. . . INSULATOR, Oxidizer, high pressure duct							1	1		
-29	7	146013-2	. . . INSULATOR, Oxidizer, high pressure duct							1	1		
-30	7	146014-1	. . . INSULATOR, Oxidizer, high pressure duct							1	1		
-31	7	146014-2	. . . INSULATOR, Oxidizer, high pressure duct							1	1		
-32	7	146009-3	. . . INSULATOR, Oxidizer, high pressure duct							1	1		

FIG. & INDEX NO.	ZONE NO.	PART NUMBER	DESCRIPTION	UNITS PER ASSY		USABLE ON CODE
			1 2 3 4 5 6 7			
56-33	7	146009-5	INSULATOR, Oxidizer, high pressure duct	1	1	
-34	8	146010-3	INSULATOR, Oxidizer, high pressure duct	1	1	
-35	7	146010-5	INSULATOR, Oxidizer, high pressure duct	1	1	
-36	7	146012-3	INSULATOR, Oxidizer, high pressure duct	1	1	
-37	7	146012-5	INSULATOR, Oxidizer, high pressure duct	1	1	
		18-209747	CHAMBER HAT BANDS AND ENGINE COMPONENTS INSULATION (Outboard engines incorporating MD224 change) (SII)	1		
		18-209747-10	CHAMBER HAT BANDS AND ENGINE COMPONENTS INSULATION (Center engines incorporating MD225 change) (SII)	1		
-38	9	209748-5	STRAP, Holding	3		
-39	9	503115	PLATE, Caution, gas pressure	1		
-40	9	503109	INSULATOR, Electrical control enclosure	2		
-41	12	503116-1	INSULATOR, Main fuel valve	1	1	
-42	12	503116-2	INSULATOR, Main fuel valve	1	1	
-43	11	503113	INSULATOR, Main fuel valve	1		
-44	11	503114	INSULATOR, Main fuel valve	1		
-45	11	503111	INSULATOR, Main fuel valve	1		
-46	11	503112	INSULATOR, Main fuel valve	1		
-47	11	503110	INSULATOR, Main fuel valve	1		
-48	14	503118-1	INSULATOR, Heat shield mount	1		
-49	14	503118-2	INSULATOR, Heat shield mount	1		
-50	13, 14 15, 16	209739	INSULATOR, Hat band, chamber	52	40	
-51	13	209741	INSULATION, Thermal, strut	2	2	
-52	13, 15, 16	209740	INSULATION, Stiffener ring, chamber	40	40	
-53	15	209738	INSULATION, Stiffener ring, chamber	13	13	
		18-209750	CHAMBER TUBES INSULATION (Incorporating MD215 change) (SIVB restart engines only)			1
		18-209750-20	CHAMBER TUBES INSULATION (Incorporating MD246 change) (SIVB restart engines only)			1
-54	13	2-9746	RETAINER ASSY, Webbing (NHA 18-209750)			24
-55	15	209745	RETAINER ASSY, Webbing (NHA 18-209750)			130
-56	13, 14	209745-11	RETAINER ASSY, Webbing (NHA 18-209750)			78
-57	15	209744-3	WEBBING, Tie down, insulator (Straps) (NHA 18-209750)			2
-58	15	209736-3	INSULATOR, Thrust chamber tubes			14
-59	15	209744-5	WEBBING, Tie down, insulator (Straps) (NHA 18-209750)			2
-60	15	209736-5	INSULATOR, Thrust chamber tubes			14
-61	15	209744-7	WEBBING, Tie down, insulator (Straps) (NHA 18-209750)			2
-62	15	209736-7	INSULATOR, Thrust chamber tubes			14
-63	13, 15	209744-9	WEBBING, Tie down, insulator (Straps) (NHA 18-209750)			2
-64	15	209736-9	INSULATOR, Thrust chamber tubes			14
-65	15	209744-13	WEBBING, Tie down, insulator (Straps) (NHA 18-209750)			2
-66	15	209736-13	INSULATOR, Thrust chamber tubes			14
-67	13, 14	209744-15	WEBBING, Tie down, insulator (Straps) (NHA 18-209750)			2
-68	14	209736-15	INSULATOR, Thrust chamber tubes			14
-69	13	209744-17	WEBBING, Tie down, insulator (Straps) (NHA 18-209750)			2
-70	13	209736-17	INSULATOR, Thrust chamber tubes			14
-71	13	209744-19	WEBBING, Tie down, insulator (Straps) (NHA 18-209750)			2
-72	13	209736-19	INSULATOR, Thrust chamber tubes			14
-73	13	209744-23	WEBBING, Tie down, insulator (Straps) (NHA 18-209750)			2
-74	13	209736-23	INSULATOR, Thrust chamber tubes			14
		RD171-1022-0001	NAMEPLATE			2
		18-146020-10	COMPONENTS INSULATION (Incorporating MD318 change) (All SII engines)	1	1	
		3M425	TAPE, 1 IN. Wide (MFD by 04963)	3	3	
		3M425	TAPE, 2 IN. Wide (MFD by 04963)	4	4	
		RB0150-026	TAPE, Type III	1	1	
		No Number	MICRO FIBRE FELT, Type 475 or Type E (MFD by 75165)	4	4	
		RD171-1022-0001	PLATE	2	2	
		18-146055	COMPONENT INSULATION (Outboard engines incorporating MD292 change) (SII)	1		
-75	17	146052	INSULATOR, Shutoff valve	1		
-76	20	146053	INSULATOR, Shutoff valve	1		
-77	19	146054-3	INSULATOR, Oxygen turbine bypass valve (Oxidizer turbine bypass valve)	1		
-78	18	146054-9	INSULATOR, Oxygen turbine bypass valve (Oxidizer turbine bypass valve)	1		
-79	18	146054-5	INSULATOR, Oxygen turbine bypass valve (Oxidizer turbine bypass valve)	1		
-80	19	146054-7	INSULATOR, Oxygen turbine bypass valve (Oxidizer turbine bypass valve)	1		
		18-146006	FUEL BLEED LINE INSULATION (Incorporating MD358 change) (All assigned SII and SIVB engines)	1	1	1
		2650	TAPE, Size .010 by 1.00 IN. by 972 gage (MFD by 99742)	1	1	1
		2650	TAPE, Size .010 by 2.00 IN. by 972 gage (MFD by 99742)	1	1	1
		No Number	MICRO FIBRE FELT, Type 475 or Type E (MFD by 75165)	1	1	1
		RB0150-026	TAPE, Type III	7	1	1

Section II
Coupling Nut Gaskets and Closures
for Electrical Plugs and Receptacles

R-3825-4

REFERENCE DESIGNATION		PART NUMBER	NEXT HIGHER ASSEMBLY	FIGURE & INDEX NO.	PLUG COUPLING NUT GASKET		CLOSURES	
PLUG	RECEP-TACLE				(a) RD262-3002	(b) RD261-2006	PLUG RD265-6010	RECEPTACLE RD265-6002
P1	J1	501727-511	503165	2-82	-0032		-3011	
			503165-11	2-82	-0032		-3011	
			503165	28-18	-0032		-3011	
			503165-11	28-18	-0032		-3011	
		503172-511	503160	2-82		-0032	-3011	
			503160	28-18		-0032	-3011	
		19-502958-3	502670-181	2-58			-3011	-3011
			502670-251	2-58				-3011
			502670-261	2-58				-3011
P2	J2	501727-561	503166	2-84	-0036		-3012	
			503166-11	2-84	-0036		-3012	
			503165-11	28-23	-0036		-3012	
		503162	503158	2-84		-0036	-3012	
			503158	28-23		-0036	-3012	
		19-502958-6	502670-181	2-59			-3012	-3012
			502670-251	2-59				-3012
			502670-261	2-59				-3012
P3	J3	501727-481	502951	2-19	-0028		-3010	
			502951-11	2-19	-0028		-3010	
		503162-11	503157	28-2		-0028	-3010	
		19-502958-2	502670-181	2-57				-3010
			502670-251	2-57				-3010
			502670-261	2-57				-3010
P13	J13	501727-91	502951	2-20	-0014		-3004	
			502951-11	2-20	-0014		-3004	
		503172-91	503157	28-3		-0014	-3004	
		NA5-27273T2	558130-501	8-17A				-3004
			558130-511	8-17A				-3004
			558130-501	8-124				-3004
			558130-511	8-124				-3004
P14	J14	501727-91	502951	2-21	-0014		-3004	
			502951-11	2-21	-0014		-3004	
		503172-91	503157	28-4		-0014	-3004	
		558069	558130-321	8-11A				-3004
			558130-331	8-11A				-3004
		558065-3	558069	9-10				-3004
P15	J15	501727-91	502951	2-22	-0014		-3004	
			502951-11	2-22	-0014		-3004	
		503172-91	503157	28-5		-0014	-3004	
		558069	558130-321	8-11				-3004
			558130-331	8-11				-3004
		558065-3	558069	9-10				-3004
P16	J16 deleted	502272-111	502951	2-23	-0014		-3004	
			502951-11	2-23	-0014		-3004	
P17		501727-91	502951	2-24	-0014		-3004	
			502951-11	2-24	-0014		-3004	
		5013172-91	503157	28-7		-0014	-3004	
		NA5-27273T1	558130-501	8-17				-3004
			558130-511	8-17				-3004
			558130-501	8-123				-3004
			558130-511	8-123				-3004
P18	J18	501727-91	502951	2-25	-0014		-3004	
			502951-11	2-25	-0014		-3004	
		503172-91	503157	28-8		-0014	-3004	
		558069	558101	3-60				-3004
			558101	4-64				-3004
P19		501727-131	502951	2-26	-0014		-3004	
			502951-11	2-26	-0014		-3004	
		503172-131	503157	28-9		-0014	-3004	

(a) Gasket (round) used with olive-colored plugs.

(b) Gasket (rectangular) used with gold-colored plugs.

Figure 57. Coupling Nut Gaskets and Closures for Electrical Plugs and Receptacles (Sheet 1 of 11)

REFERENCE DESIGNATION		PART NUMBER	NEXT HIGHER ASSEMBLY	FIGURE & INDEX NO.	PLUG COUPLING NUT GASKET		CLOSURES	
PLUG	RECEP-TACLE				(a) RD262-3002	(b) RD261-2006	PLUG RD265-6010	RECEPTACLE RD265-6002
P20	J19	500750	556101	2-78				-3004
	J19A	500525	309360-51	21-103				-3004
			309360-71	21-103				-3004
		501727-111	502951	2-28	-0014		-3004	
P21			502951-11	2-28	-0014		-3004	
		503172-111	503157	28-10		-0014	-3004	
	J20	308390	556101	2-40A				-3004
		501727-41	502951	2-29	-0010		-3002	
P22			502951-11	2-29	-0010		-3002	
	J21	503172-41	503157	28-11		-0010	-3002	
		502957	556101	2-32				-3002
			103850	28-86				-3002
(TapCFT2a) P25		502272-41	502951	2-30	-0010		-3002	
			502951-11	2-30	-0010		-3002	
	J22	503173-41	503157	28-12		-0010	-3002	
		NA5-27441	702527	32-91B				-3002
P26		501727-211	503165	28-19	-0018		-3006	
	J25	501740-211	503165-11	28-19	-0018		-3006	
			702626	32-				-3006
			702626-11	32-				-3006
P36 ^(d)		503174-211	704478	28-25				-3006
		502272-111	502951	2-31	-0014		-3004	
			502951-11	2-31	-0014		-3004	
	J26	503173-111	503157	28-13		-0014	-3004	
P36A ^(e)		308390	556101	2-41A				-3004
		502272-311	503164	28-15A	-0020	-0020	-3007	
			503164-11	28-15A	-0020	-0020	-3007	
		703935-5 spacer	502272-311	28-16C				-3007
P38		503173-311	503159	28-16		-0020	-3007	
	J36 ^(d)	NA5-27466T114S	503266	28-206			RE265-6202-0011	-3007
	J36 ^(e)	501551-91	NA5-26728T4	17-7B				RE265-6201-0011
		NA5-28203T1	309415-131	28-223				RE265-6201-0011
P38			309415-141	28-223				-3007
	J36A ^(e)	10-438194-111 gasket	NA5-28203T1	17A-9A				-3007
		10-416277-4 spacer	NA5-28203T1	17A-9B				-3007
		NA5-27502T2029P	503266	28-205				-3007
P51		501727-301	503164	28-14A	-0020		-3007	
			503164-11	28-14A	-0020		-3007	
	Interface	503172-301	503159	28-15		-0020	-3007	
		501727-501	503165	28-20	-0032		-3011	
P54			503165-11	28-20	-0032		-3011	
	Interface	503172-501	503160	28-20		-0032	-3011	
		501727-571	503166	28-22	-0036		-3012	
			503166-11	28-22	-0036		-3012	
P55		503172-571	503158	28-22		-0036	-3012	
	Interface							
	J55	503173-71	502265	28-85		-0012	-3003	
		558301-11	557998-41	27-13				-3004
P100		501727-211	704489	28-40	-0018		-3006	
			704489-11	28-40	-0018		-3006	
	J100	503172-211	704479	28-40		-0018	-3006	
		19-702996-1	703684	32-26				-3006
P101			703684-11	32-26				-3006
			704094	32-26				-3006
			704094-21	32-26				-3006
			704094-31	32-26				-3006
P102			704094-51	32-26				-3006
			704094-81	32-26				-3006
	J101	503172-561	704478	28-27		-0036	-3012	
		19-702996-26	703684	32-32				-3012
P102			703684-11	32-32				-3012
			704094	32-32				-3012
			704094-21	32-32				-3012
			704094-31	32-32				-3012
P102			704094-51	32-32				-3012
			704094-81	32-32				-3012
	J102	503172-341	703250	28-37	-0022		-3008	
			703250-11	28-37	-0022		-3008	
P102		503172-341	704487	28-37	-0022	-0022	-3008	
		19-702996-10	703684	32-34				-3008
			703684-11	32-34				-3008
								-3008

(a) Gasket (round) used with olive-colored plugs.

(b) Gasket (rectangular) used with gold-colored plugs.

(d) Engines not incorporating MD366 or MD371 changes.

(e) Engines incorporating MD366 or MD371 changes.

Figure 57. Coupling Nut Gaskets and Closures for Electrical Plugs and Receptacles (Sheet 2 of 11)

Section II
Coupling Nut Gaskets and Closures
for Electrical Plugs and Receptacles

R-3825-4

REFERENCE DESIGNATION		PART NUMBER	NEXT HIGHER ASSEMBLY	FIGURE & INDEX NO.	PLUG COUPLING NUT GASKET		CLOSURES	
PLUG	RECEP-TACLE				(a) RD262-3002	(b) RD261-2006	PLUG RD265-6010	RECEPTACLE RD265-6002
P103	J103	501727-491 503172-491 19-702996-17	704094	32-34				-3008
			704094-21	32-34				-3008
			704094-31	32-34				-3008
			704094-51	32-34				-3008
			704094-81	32-34				-3008
			704490	28-43	-0028		-3010	
			704490-11	28-43	-0028		-3010	
			704480	28-43		-0028	-3010	
			703684	32-28				-3010
			703684-11	32-28				-3010
P104	J104	501727-481 503172-481 19-702996-18	704094	32-28				-3010
			704094-21	32-28				-3010
			704094-31	32-28				-3010
			704094-51	32-28				-3010
			704094-81	32-28				-3010
			704491	28-46	-0028		-3010	
			704491-11	28-46	-0028		-3010	
			704481	28-46		-0028	-3010	
			703684	32-30				-3010
			703684-11	32-30				-3010
P105	Interface	501727-201 503172-201	704094	32-30				-3010
			704094-21	32-30				-3010
			704094-31	32-30				-3010
			704094-51	32-30				-3010
			704094-81	32-30				-3010
			704489	28-41	-0018		-3006	
			704489-11	28-41	-0018		-3006	
			704479	28-41		-0018	-3006	
			704490	28-44	-0028		-3010	
			704490-11	28-44	-0028		-3010	
P106	Interface	501727-481 503172-481	704480	28-44		-0028	-3010	
			704491	28-47	-0028		-3010	
			704491-11	28-47	-0028		-3010	
			704481	28-47		-0028	-3010	
			704496	28-59	-0036		-3012	
			704496-11	28-59	-0036		-3012	
			704485	28-59		-0036	-3012	
			704495	28-65	-0022		-3008	
			704495-11	28-65	-0022		-3008	
			704484	28-65		-0022	-3008	
P107	Interface	501727-491 503172-491	704495	28-61	-0014		-3004	
			704495-11	28-61	-0014		-3004	
			704484	28-61		-0014	-3004	
			410372	32-82				-3004
			702527	32-82				-3004
			410372	14-354				-3004
			704495	28-62	-0014		-3004	
			704495-11	28-62	-0014		-3004	
			704484	28-62		-0014	-3004	
			410373	32-81				-3004
P108	Interface	501727-541 503172-541	702527	32-81				-3004
			410373	14-291				-3004
			704495	28-63	-0014		-3004	
			704495-11	28-63	-0014		-3004	
			704484	28-63		-0014	-3004	
			460390-201	18-32				-3004
			460390-191	18-32				-3004
			460161-61	18-32				-3004
			460390-151	18-32				-3004
			460390-181	18-32				-3004
P109	Interface	501727-91 503172-91 NA5-27331	460160-61	18-32				-3004
			460160-71	18-32				-3004
			704495	28-64	-0014		-3004	
			704495-11	28-64	-0014		-3004	
			704484	28-64		-0014	-3004	
			458175-81	20-58				-3004
			458175-111	20-58				-3004
			458175-151	20-58				-3004
			458175-161	20-58				-3004
			458175-111	20-58				-3004

(a) Gasket (round) used with olive-colored plugs.
(b) Gasket (rectangular) used with gold-colored plugs.

Figure 57. Coupling Nut Gaskets and Closures for Electrical Plugs and Receptacles (Sheet 3 of 11)

REFERENCE DESIGNATION		PART NUMBER	NEXT HIGHER ASSEMBLY	FIGURE & INDEX NO.	PLUG COUPLING NUT GASKET		CLOSURES	
PLUG	RECEPTACLE				(a) RD262-3002	(b) RD261-2006	PLUG RD265-6010	RECEPTACLE RD265-6002
P114		503172-171	704478	28-28		-0016	-3005	
P115	J114	405817	409920	16-1				-3005
	J115	503172-171	704478	28-29		-0016	-3005	
		405817	409969	15-1				-3005
			410431	15-1				-3005
			411031	15-1				-3005
			411031-11	15-1				-3005
P116	J116	503173-171	704478	28-30		-0016	-3005	
P117	J117	NA5-27307	309040-31	19-8				-3005
		503173-171	704478	28-31		-0016	-3005	
		408012	409930	23-3				-3005
			409940	23-3				-3005
P118	J118	503172-171	704478	28-32		-0016	-3005	
		NA5-27306	309020	26-11				-3005
			306875	26-11				-3005
P119		503173-171	704478	28-33		-0016	-3005	
P119A ^(e)	J119 ^(d)	NA5-27466T1198S	704562	28-210			RE265-6202-0011	
	J119 ^(e)	501551-161	NA5-26726T5	17-7C				-3005
		NA5-27480	309415-131	28-222				RE265-6201-0011
			309415-141	28-222				RE265-6201-0011
		10-438194-111 gasket	NA5-27480	17A-14A				
	J119A ^(e)	10-416277-5 spacer		17A-14B				
P120	J120	NA5-27502T161P	704562	28-211				-3005
		503172-51	704478	28-26		-0010	-3002	
P122	J120	308880	404651	14-60				-3002
		502272-41	704496	28-57	-0010		-3002	
			704496-11	28-57	-0010		-3002	
(TapNNT1)	J122	503173-41	704485	28-57		-0010	-3002	
		NA5-27215T3	307570	25-49				-3002
			307570-11	25-49				-3002
			307570-21	25-49				-3002
			307570-41	25-49				-3002
			307570-51	25-49				-3002
			307570-31	25-49				-3002
			307570-61	25-49				-3002
P123		501727-131	704496	28-56	-0014		-3004	
			704496-11	28-56	-0014		-3004	
(TapTFT1)	J123	503172-131	704485	28-56		-0014	-3004	
		NA5-27215T5	307570	25-12				-3004
			307570-11	25-12				
			307570-21	25-12				
			307570-41	25-12				
			307570-51	25-12				
			307570-31	25-12				
			307570-61	25-12				
P124		502272-131	704496	28-49	-0014		-3004	
			704496-11	28-49	-0014		-3004	
(TapPFT1)	J124	503173-131	704485	28-49		-0014	-3004	
		NA5-27215T5	410372	14-357				-3004
			410372-11	14-357				-3004
			410372-21	14-357				-3004
			702527	32-89A				-3004
			406651	14-357				-3004
P125		502272-131	704496	28-51	-0014		-3004	
			704496-11	28-51	-0014		-3004	
(TapPOT3)	J125	503173-131	704485	28-51		-0014	-3004	
		NA5-27215T5	410373	14-285				-3004
			410373-11	14-285				-3004
			410373-21	14-285				-3004
			702527	32-89B				-3004
			406651	14-285				-3004
P126		502272-41	704496	28-50	-0010		-3002	
			704496-11	28-50	-0010		-3002	
(TapTGT1)	J126	502937-631	704485	28-50		-1010 ^(c)	-3002	
		NA5-27323T3	460390-181	18-46				-3002
		NA5-27323T6	702527	31-121				-3002

(a) Gasket (round) used with olive-colored plugs.

(b) Gasket (rectangular) used with gold-colored plugs.

(c) Gasket (rectangular) used with gold-colored, high-temperature stainless steel plugs with ceramic inserts.

(d) Engines not incorporating MD366 or MD371 changes.

(e) Engines incorporating MD366 or MD371 changes.

Figure 57. Coupling Nut Gaskets and Closures for Electrical Plugs and Receptacles (Sheet 4 of 11)

Section II
Coupling Nut Gaskets and Closures
for Electrical Plugs and Receptacles

R-3825-4

REFERENCE DESIGNATION		PART NUMBER	NEXT HIGHER ASSEMBLY	FIGURE & INDEX NO.	PLUG COUPLING NUT GASKET		CLOSURES	
PLUG	RECEP-TACLE				(a)	(b)	PLUG	RECEPTACLE
					RD262-3002	RD261-2006	RD265-6010	RD265-6002
P127 (TapTGT3)	J127	502272-41	704496	28-53	-0010		-3002	
			704496-11	28-53	-0010		-3002	
		502937-631	704485	28-53		-1010 ^(c)	-3002	
		NA5-27323T6	458175-81	20-50				-3002
			458175-111	20-50				-3002
P128 (TapTGT4)	J128		458175-151	20-50			-3002	
			458175-161	20-50				-3002
		NA5-27323T6	702527	31-122				-3002
		502272-41	704496	28-54	-0010		-3002	
			704496-11	28-54	-0010		-3002	
P129 (TapCS1)	J129	502937-631	704485	28-54		-1010 ^(c)	-3002	
		NA5-27323T3	702527	32-96				-3002
		NA5-27323T6	702527	32-96				-3002
		501727-41	704496	28-52	-0010		-3002	
			704496-11	28-52	-0010		-3002	
P130 (TapCS1a)	J130	503172-41	704485	28-52		-0010	-3002	
		NA5-27321T2	702527	32-88				-3002
		501727-41	704496	28-58	-0010		-3002	
			704496-11	28-58	-0010		-3002	
		503172-41	704485	28-58		-0010	-3002	
P131 (TapCS1a)	J131	NA5-27321T2	702527	32-87A				-3002
		502272-41	704496	28-55	-0010		-3002	
			704496-11	28-55	-0010		-3002	
		503173-41	704485	28-55		-0010	-3002	
		NA5-27441	702527	32-92				-3002
P132 								

(a) Gasket (round) used with olive-colored plugs.

(b) Gasket (rectangular) used with gold-colored plugs.

(c) Gasket (rectangular) used with gold-colored, high-temperature stainless steel plugs with ceramic inserts.

Figure 57. Coupling Nut Gaskets and Closures for Electrical Plugs and Receptacles (Sheet 5 of 11)

REFERENCE DESIGNATION		PART NUMBER	NEXT HIGHER ASSEMBLY	FIGURE & INDEX NO.	PLUG COUPLING NUT GASKET		CLOSURES	
PLUG	RECEP-TACLE				(a) RD262-3002	(b) RD261-2006	PLUG	RECEPTACLE
							RD265-6010	RD265-6002
(TapCG1)	J137	NA5-27412T10T	703684	32-17				-3004
			703684-11	32-17				-3004
			704094	32-17				-3004
			704094-21	32-17				-3004
			704094-31	32-17				-3004
			704094-51	32-17				-3004
			704094-81	32-17				-3004
P138		703677	703684	32-18A		-0014	-3004	
			703684-11	32-18A		-0014	-3004	
			704094	32-18A		-0014	-3004	
			704094-21	32-18A		-0014	-3004	
			704094-31	32-18A		-0014	-3004	
			704094-51	32-18A		-0014	-3004	
			704094-81	32-18A		-0014	-3004	
(TapGG1)	J138	NA5-27412T10T	703684	32-18				-3004
			703684-11	32-18				-3004
			704094	32-18				-3004
			704094-21	32-18				-3004
			704094-31	32-18				-3004
			704094-51	32-18				-3004
			704094-81	32-18				-3004
P139		703677	703684	32-10A		-0014	-3004	
			703684-11	32-10A		-0014	-3004	
			704094	32-10A		-0014	-3004	
			704094-21	32-10A		-0014	-3004	
			704094-31	32-10A		-0014	-3004	
			704094-51	32-10A		-0014	-3004	
			704094-81	32-10A		-0014	-3004	
(TapNN1)	J139	NA5-27412T35T	703684	32-10				-3004
			703684-11	32-10				-3004
			704094	32-10				-3004
			704094-21	32-10				-3004
			704094-31	32-10				-3004
			704094-51	32-10				-3004
			704094-81	32-10				-3004
P140		703677	703684	32-11A		-0014	-3004	
			703684-11	32-11A		-0014	-3004	
			704094	32-11A		-0014	-3004	
			704094-21	32-11A		-0014	-3004	
			704094-31	32-11A		-0014	-3004	
			704094-51	32-11A		-0014	-3004	
			704094-81	32-11A		-0014	-3004	
(TapTF1)	J140	NA5-27412T15T	703684	32-11				-3004
			703684-11	32-11				-3004
			704094	32-11				-3004
			704094-21	32-11				-3004
			704094-31	32-11				-3004
			704094-51	32-11				-3004
			704094-81	32-11				-3004
P141		703745	703250	28-38	-0014		-3004	
			703250-11	28-38	-0014		-3004	
(TapPF6)	J141	NA5-27412T2T	704487	28-38		-0014	-3004	
P150		501727-211	702527	28-38D				-3004
			704492	28-67	-0018		-3006	
			704492-11	28-67	-0018		-3006	
			704482	28-67		-0018	-3006	
	J150	503172-211	703679	31-37				-3006
		19-702996-1	703679-11	31-37				-3006
			704089	31-37				-3006
			704089-21	31-37				-3006
			704089-91	31-37				-3006
			704089-101	31-37				-3006
			704089-131	31-37				-3006
			704089-171	31-37				-3006
P151		501727-571	704493	28-70	-0036		-3012	
			704493-11	28-70	-0036		-3012	
			704488	28-70		-0036	-3012	
	J151	503172-571	703679	31-34				-3012
		19-702996-25	703679-11	31-34				-3012
			704089	31-34				-3012
			704089-21	31-34				-3012
			704089-91	31-34				-3012
			704089-101	31-34				-3012

(a) Gasket (round) used with olive-colored plugs.

(b) Gasket (rectangular) used with gold-colored plugs.

Figure 57. Coupling Nut Gaskets and Closures for Electrical Plugs and Receptacles (Sheet 6 of 11)

Section II
Coupling Nut Gaskets and Closures
for Electrical Plugs and Receptacles

R-3825-4

REFERENCE DESIGNATION		PART NUMBER	NEXT HIGHER ASSEMBLY	FIGURE & INDEX NO.	PLUG COUPLING NUT GASKET		CLOSURES	
PLUG	RECEPTACLE				(a) RD262-3002	(b) RD261-2006	PLUG RD265-6010	RECEPTACLE RD265-6002
P152	J152	501727-491 503172-491 19-702996-17	704089-131	31-34				-3012
			704089-171	31-34				-3012
			704494	28-73	-0028		-3010	
			704494-11	28-73	-0028		-3010	
			704483	28-73		-0028	-3010	
			703679	31-31				-3010
			703679-11	31-31				-3010
			704089	31-31				-3010
			704089-21	31-31				-3010
			704089-91	31-31				-3010
			704089-101	31-31				-3010
			704089-131	31-31				-3010
			704089-171	31-31				-3010
			704492	28-68	-0022		-3008	
P153	Interface	501727-361 503172-361	704492-11	28-68	-0022		-3008	
			704482	28-68		-0022	-3008	
P154	Interface	501727-561 503172-561	704493	28-71	-0036		-3012	
			704493-11	28-71	-0036		-3012	
P155	Interface	501727-421 503172-421	704488	28-71		-0036	-3012	
			704494	28-74	-0024		-3009	
P156	Interface	501727-581 503172-581	704494-11	28-74	-0024		-3009	
			704483	28-74		-0024	-3009	
P157	Interface	501727-581 503172-581	704497	28-82	-0036		-3012	
			704497-11	28-82	-0036		-3012	
(TapHOT2) P158	J157	502272-131 503173-131	704486	28-76	-0014		-3004	
			704486-11	28-76	-0014		-3004	
(TapGFT1)	J158	NA5-27215T7 NA5-27215T5	702527	32-98		-0014	-3004	
			704497	28-77	-0014		-3004	
P159	J159	502272-131 503173-131	704497-11	28-77	-0014		-3004	
			704486	28-77		-0014	-3004	
(TapGOT2)	J160	NA5-27215T5 NA5-27343T4	704486-11	28-77		-0014	-3004	
			410372	14-326			-3004	
(TapGGT1)	J161	NA5-27326 NA5-27325T1	410372-11	14-326			-3004	
			410372-21	14-326			-3004	
P161	J162	502272-41 503172-41	702527	32-89C			-3004	
			406651	14-326			-3004	
(TapPST1)	J163	501727-41 503172-41	704497	28-78	-0014		-3004	
			704497-11	28-78	-0014		-3004	
(TapPOT4)	J162	NA5-27325T1 501740-41	704486	28-78		-0014	-3004	
			704486-11	28-78		-0014	-3004	
P162	J163 spare	501727-41 503172-41	410373	14-280			-3004	
			410373-11	14-280			-3004	
(TapPOT4)	J162	NA5-27325T1 501740-41	410373-21	14-280			-3004	
			702527	32-90			-3004	
P163	J163 spare	501727-41 503172-41	460390-181	18-45			-3002	
			460390-151	18-45			-3002	
(TapPOT4)	J162	NA5-27325T1 501740-41	460180-51	18-45			-3002	
			460180-61	18-45			-3002	
P164	J163 spare	501727-41 503172-41	460160-171	18-45			-3002	
			704497	28-78A	-0010		-3002	
(TapPOT4)	J162	NA5-27325T1 501740-41	704497-11	28-78A	-0010		-3002	
			460390-201	18-43A	-0010		-3002	
P165	J163 spare	501727-41 503172-41	460390-191	18-43A	-0010		-3002	
			460390-161	18-43A	-0010		-3002	
(TapPOT4)	J162	NA5-27325T1 501740-41	460390-201	18-43		-0010	-3002	
			460390-191	18-43		-0010	-3002	
P166	J163 spare	501727-41 503172-41	704497	28-79	-0010		-3002	
			704497-11	28-79	-0010		-3002	
(TapPOT4)	J162	NA5-27325T1 501740-41	704486	28-79		-0010	-3002	
			704486-11	28-79		-0010	-3002	
P167	J163 spare	501727-41 503172-41	458175-81	20-55			-3002	
			458175-111	20-55			-3002	
(TapPOT4)	J162	NA5-27325T1 501740-41	458175-151	20-55			-3002	
			458175-161	20-55			-3002	
P168	J163 spare	501727-41 503172-41	704497	28-80			-3002	
			704497-11	28-80			-3002	

(a) Gasket (round) used with olive-colored plugs.
(b) Gasket (rectangular) used with gold-colored plugs.

Figure 57. Coupling Nut Gaskets and Closures for Electrical Plugs and Receptacles (Sheet 7 of 11)

REFERENCE DESIGNATION		PART NUMBER	NEXT HIGHER ASSEMBLY	FIGURE & INDEX NO.	PLUG COUPLING NUT GASKET		CLOSURES		
PLUG	RECEP-TACLE				(a)	(b)	PLUG	RECEPTACLE	
					RD262-3002	RD261-2006	RD265-6010	RD265-6002	
P180	J180 spare	503174-41	704486	28-80				-3002	
			704486-11	28-80				-3002	
		503173-41	502265	28-84		-0010	-3002		
		501740-41	704497	28-81				-3002	
			704497-11	28-81				-3002	
P181		503174-41	704486	28-81				-3002	
			704486-11	28-81				-3002	
		703677	703679	31-18A		-0014	-3004		
			703679-11	31-18A		-0014	-3004		
			704089	31-18A		-0014	-3004		
(TapGO5)	J181	NA5-27412T10T	704089-21	31-18A		-0014	-3004		
			704089-91	31-18A		-0014	-3004		
			704089-101	31-18A		-0014	-3004		
			704089-131	31-18A		-0014	-3004		
			704089-171	31-18A		-0014	-3004		
		P182	703677	703679	31-18				-3004
				703679-11	31-18				-3004
				704089	31-18				-3004
				704089-21	31-18				-3004
				704089-91	31-18				-3004
(TapGF4)	J182	NA5-27412T10T	704089-101	31-18				-3004	
			704089-131	31-18				-3004	
			704089-171	31-18				-3004	
			703679	31-16A		-0014	-3004		
			703679-11	31-16A		-0014	-3004		
		P183	703677	704089	31-16A		-0014	-3004	
				704089-21	31-16A		-0014	-3004	
				704089-91	31-16A		-0014	-3004	
				704089-101	31-16A		-0014	-3004	
				704089-131	31-16A		-0014	-3004	
(TapNN2)	J183	NA5-27412T7LT	704089-171	31-16A		-0014	-3004		
			703679	31-16				-3004	
			703679-11	31-16				-3004	
			704089	31-16				-3004	
			704089-21	31-16				-3004	
		P184	703677	704089-91	31-16				-3004
				704089-101	31-16				-3004
				704089-131	31-16				-3004
				704089-171	31-16				-3004
				703679	31-15A		-0014	-3004	
(TapCF2)	J184	NA5-27412T10T	703679-11	31-15A		-0014	-3004		
			704089	31-15A		-0014	-3004		
			704089-21	31-15A		-0014	-3004		
			704089-91	31-15A		-0014	-3004		
			704089-101	31-15A		-0014	-3004		
		P184	703677	704089-131	31-15A		-0014	-3004	
				704089-171	31-15A		-0014	-3004	
				703679	31-15				-3004
				703679-11	31-15				-3004
				704089	31-15				-3004
(TapCF2)	J184	NA5-27412T10T	704089-21	31-15				-3004	
			704089-91	31-15				-3004	
			704089-101	31-15				-3004	
			704089-131	31-15				-3004	
			704089-171	31-15				-3004	
		P184	703677	703679	31-14A		-0014	-3004	
				703679-11	31-14A		-0014	-3004	
				704089	31-14A		-0014	-3004	
				704089-21	31-14A		-0014	-3004	
				704089-91	31-14A		-0014	-3004	
(TapCF2)	J184	NA5-27412T10T	704089-101	31-14A		-0014	-3004		
			704089-131	31-14A		-0014	-3004		
			704089-171	31-14A		-0014	-3004		
			703679	31-14				-3004	
			703679-11	31-14				-3004	
(TapCF2)	J184	NA5-27412T15T	704089	31-14				-3004	

(a) Gasket (round) used with olive-colored plugs.

(b) Gasket (rectangular) used with gold-colored plugs.

(a) Gasket (round) used with olive-colored plugs.

(b) Gasket (rectangular) used with gold-colored plugs.

Figure 57. Coupling Nut Gaskets and Closures for Electrical Plugs and Receptacles (Sheet 8 of 11)

Section II
Coupling Nut Gaskets and Closures
for Electrical Plugs and Receptacles

R-3825-4

REFERENCE DESIGNATION		PART NUMBER	NEXT HIGHER ASSEMBLY	FIGURE & INDEX NO.	PLUG COUPLING NUT GASKET		CLOSURES	
PLUG	RECEP-TACLE				(a)RD262-3002	(b)RD261-2006	PLUG	RECEPTACLE
							RD265-6010	RD265-6002
P185		703677	704089-21	31-14				-3004
			704089-91	31-14				-3004
			704089-101	31-14				-3004
			704089-131	31-14				-3004
			704089-171	31-14				-3004
			703679	31-13A		-0014	-3004	
			703679-11	31-13A		-0014	-3004	
			704089	31-13A		-0014	-3004	
			704089-21	31-13A		-0014	-3004	
			704089-91	31-13A		-0014	-3004	
			704089-101	31-13A		-0014	-3004	
			704089-131	31-13A		-0014	-3004	
			704089-171	31-13A		-0014	-3004	
			703679	31-13				-3004
			703679-11	31-13				-3004
			704089	31-13				-3004
(TapPO8)	J185	NA5-27412T10T	704089-21	31-13				-3004
			704089-91	31-13				-3004
			704089-101	31-13				-3004
			704089-131	31-13				-3004
			704089-171	31-13				-3004
			703679	31-23A		-0014	-3004	
			703679-11	31-23A		-0014	-3004	
			704089	31-23A		-0014	-3004	
			704089-21	31-23A		-0014	-3004	
			704089-91	31-23A		-0014	-3004	
			704089-101	31-23A		-0014	-3004	
			704089-131	31-23A		-0014	-3004	
			704089-171	31-23A		-0014	-3004	
			703679	31-23				-3004
			703679-11	31-23				-3004
			704089	31-23				-3004
P186		703677	704089-21	31-23				-3004
			704089-91	31-23				-3004
			704089-101	31-23				-3004
			704089-131	31-23				-3004
			704089-171	31-23				-3004
			703679	31-11A		-0014	-3004	
			703679-11	31-11A		-0014	-3004	
			704089	31-11A		-0014	-3004	
			704089-21	31-11A		-0014	-3004	
			704089-91	31-11A		-0014	-3004	
			704089-101	31-11A		-0014	-3004	
			704089-131	31-11A		-0014	-3004	
			704089-171	31-11A		-0014	-3004	
			704089-91	31-11				-3004
			704089-101	31-11				-3004
			704089-131	31-11				-3004
(TapTG4)	J186	NA5-27412T1T	704089-171	31-11				-3004
			703679	31-10A		-0014	-3004	
			703679-11	31-10A		-0014	-3004	
			704089	31-10A		-0014	-3004	
			704089-21	31-10A		-0014	-3004	
			704089-91	31-10A		-0014	-3004	
			704089-101	31-10A		-0014	-3004	
			704089-131	31-10A		-0014	-3004	
			704089-171	31-10A		-0014	-3004	
			703679	31-10				-3004
			703679-11	31-10				-3004
			704089	31-10				-3004
			704089-21	31-10				-3004
			704089-91	31-10				-3004
			704089-101	31-10				-3004
			P187		703677	704089-131	31-10	
704089-171	31-10A					-0014	-3004	
703679	31-8A					-0014	-3004	
703679-11	31-8A					-0014	-3004	
704089	31-8A					-0014	-3004	
704089-21	31-8A					-0014	-3004	
704089-91	31-8A					-0014	-3004	
704089-101	31-8A					-0014	-3004	
704089-131	31-8A					-0014	-3004	
704089-171	31-8A					-0014	-3004	
703679	31-10							-3004
703679-11	31-10							-3004
704089	31-10							-3004
704089-21	31-10							-3004
704089-91	31-10							-3004
(TapNN1)	J187	NA5-27412T50T				704089-101	31-10	
			704089-131	31-10				-3004
			704089-171	31-10				-3004
			703679	31-10A		-0014	-3004	
			703679-11	31-10A		-0014	-3004	
			704089	31-10A		-0014	-3004	
			704089-21	31-10A		-0014	-3004	
			704089-91	31-10A		-0014	-3004	
			704089-101	31-10A		-0014	-3004	
			704089-131	31-10A		-0014	-3004	
			704089-171	31-10A		-0014	-3004	
			703679	31-10				-3004
			703679-11	31-10				-3004
			704089	31-10				-3004
			704089-21	31-10				-3004
			P188		703677	704089-91	31-10	
704089-101	31-10							-3004
704089-131	31-10							-3004
704089-171	31-10							-3004
703679	31-8A					-0014	-3004	
703679-11	31-8A					-0014	-3004	
704089	31-8A					-0014	-3004	
704089-21	31-8A					-0014	-3004	
704089-91	31-8A					-0014	-3004	
704089-101	31-8A					-0014	-3004	
704089-131	31-8A					-0014	-3004	
704089-171	31-8A					-0014	-3004	
703679	31-10							-3004
703679-11	31-10							-3004
704089	31-10							-3004
(TapHO1)	J188	NA5-27412T10T				704089-21	31-10	
			704089-91	31-10				-3004
			704089-101	31-10				-3004
			704089-131	31-10				-3004
			704089-171	31-10				-3004
			703679	31-10A		-0014	-3004	
			703679-11	31-10A		-0014	-3004	
			704089	31-10A		-0014	-3004	
			704089-21	31-10A		-0014	-3004	
			704089-91	31-10A		-0014	-3004	
			704089-101	31-10A		-0014	-3004	
			704089-131	31-10A		-0014	-3004	
			704089-171	31-10A		-0014	-3004	
			703679	31-10				-3004
			703679-11	31-10				-3004
			704089	31-10				-3004

(a) Gasket (round) used with olive-colored plugs.

(b) Gasket (rectangular) used with gold-colored plugs.

(a) Gasket (round) used with olive-colored plugs.

(b) Gasket (rectangular) used with gold-colored plugs.

Figure 57. Coupling Nut Gaskets and Closures for Electrical Plugs and Receptacles (Sheet 9 of 11)

REFERENCE DESIGNATION		PART NUMBER	NEXT HIGHER ASSEMBLY	FIGURE & INDEX NO.	PLUG COUPLING NUT GASKET		CLOSURES	
PLUG	RECEP-TACLE				(a) RD262-3002	(b) RD261-2006	PLUG	RECEPTACLE
							RD265-6010	RD265-6002
(TapPO6)	J189	NA5-27412T05T	703679 703679-11 704089 704089-21 704089-91 704089-101 704089-131 704089-171	31-8 31-8 31-8 31-8 31-8 31-8 31-8 31-8				-3004 -3004 -3004 -3004 -3004 -3004 -3004 -3004
P190		703677	703679 703679-11 704089 704089-21 704089-91 704089-101 704089-131 704089-171	31-9A 31-9A 31-9A 31-9A 31-9A 31-9A 31-9A 31-9A	-0014 -0014 -0014 -0014 -0014 -0014 -0014 -0014	-3004 -3004 -3004 -3004 -3004 -3004 -3004 -3004		
(TapPO7)	J190	NA5-27412T5T	703679 703679-11 704089 704089-21	31-9 31-9 31-9 31-9				-3004 -3004 -3004 -3004
(TapTF1)	J190	NA5-27412T35T	704089-91 704089-101 704089-131 704089-171	31-9 31-9 31-9 31-9				-3004 -3004 -3004 -3004
P191		703677	703679 703679-11 704089 704089-21 704089-91 704089-101 704089-131 704089-171	31-12A 31-12A 31-12A 31-12A 31-12A 31-12A 31-12A 31-12A	-0014 -0014 -0014 -0014 -0014 -0014 -0014 -0014	-3004 -3004 -3004 -3004 -3004 -3004 -3004 -3004		
(TapPO9)	J191	NA5-27412T5T	703679 703679-11 704089 704089-21 704089-91 704089-101 704089-131 704089-171	31-12 31-12 31-12 31-12 31-12 31-12 31-12 31-12				-3004 -3004 -3004 -3004 -3004 -3004 -3004 -3004
P192		703677	703679 703679-11 704089 704089-21 704089-91 704089-101 704089-131 704089-171	31-24A 31-24A 31-24A 31-24A 31-24A 31-24A 31-24A 31-24A	-0014 -0014 -0014 -0014 -0014 -0014 -0014 -0014	-3004 -3004 -3004 -3004 -3004 -3004 -3004 -3004		
(TapTG3)	J192	NA5-27412T2T	703679 703679-11 704089 704089-21 704089-91 704089-101 704089-131 704089-171	31-24 31-24 31-24 31-24 31-24 31-24 31-24 31-24				-3004 -3004 -3004 -3004 -3004 -3004 -3004 -3004
P193		703677	703679 703679-11 704089 704089-21 704089-91 704089-101 704089-131 704089-171	31-17A 31-17A 31-17A 31-17A 31-17A 31-17A 31-17A 31-17A	-0014 -0014 -0014 -0014 -0014 -0014 -0014 -0014	-3004 -3004 -3004 -3004 -3004 -3004 -3004 -3004		
(TapCO3)	J193	NA5-27412T10T NA5-27412T15T	703679 703679-11 704089 704089-21 704089-91 704089-101 704089-131 704089-171	31-17 31-17 31-17 31-17 31-17 31-17 31-17 31-17				-3004 -3004 -3004 -3004 -3004 -3004 -3004 -3004
(a) Gasket (round) used with olive-colored plugs. (b) Gasket (rectangular) used with gold-colored plugs.								

(a) Gasket (round) used with olive-colored plugs.

(b) Gasket (rectangular) used with gold-colored plugs.

Figure 57. Coupling Nut Gaskets and Closures for Electrical Plugs and Receptacles (Sheet 10 of 11)

Section II
Coupling Nut Gaskets and Closures
for Electrical Plugs and Receptacles

R-3825-4

REFERENCE DESIGNATION		PART NUMBER	NEXT HIGHER ASSEMBLY	FIGURE & INDEX NO.	PLUG COUPLING NUT GASKET		CLOSURES		
PLUG	RECEP-TACLE				(a) RD262-3002	(b) RD261-2006	PLUG	RECEPTACLE	
							RD265-6010	RD265-6002	
P194	(TapPF5)	703677	703679	31-19A		-0014	-3004		
			703679-11	31-19A		-0014	-3004		
			704089	31-19A		-0014	-3004		
			704089-21	31-19A		-0014	-3004		
			704089-91	31-19A		-0014	-3004		
			704089-101	31-19A		-0014	-3004		
			704089-131	31-19A		-0014	-3004		
			704089-171	31-19A		-0014	-3004		
		NA5-27412T10T	703679	31-19				-3004	
			703679-11	31-19				-3004	
			704089	31-19				-3004	
			704089-21	31-19				-3004	
			704089-91	31-19				-3004	
			704089-101	31-19				-3004	
			704089-131	31-19				-3004	
			704089-171	31-19				-3004	
P195		J194	703677	703679	31-24B		-0014	-3004	
	703679-11			31-24B		-0014	-3004		
	704089			31-24B		-0014	-3004		
	704089-21			31-24B		-0014	-3004		
	704089-91			31-24B		-0014	-3004		
	704089-101			31-24B		-0014	-3004		
	704089-131			31-24B		-0014	-3004		
	704089-171			31-24B		-0014	-3004		
P196	Dummy		703677	703679	31-24C		-0014	-3004	
				703679-11	31-24C		-0014	-3004	
				704089	31-24C		-0014	-3004	
				704089-21	31-24C		-0014	-3004	
				704089-91	31-24C		-0014	-3004	
				704089-101	31-24C		-0014	-3004	
				704089-131	31-24C		-0014	-3004	
				704089-171	31-24C		-0014	-3004	
P197			Dummy	703677	703679	31-24D		-0014	-3004
		703679-11			31-24D		-0014	-3004	
		704089			31-24D		-0014	-3004	
		704089-21			31-24D		-0014	-3004	
		704089-91			31-24D		-0014	-3004	
		704089-101			31-24D		-0014	-3004	
		704089-131			31-24D		-0014	-3004	
		704089-171			31-24D		-0014	-3004	
		Dummy							

(a) Gasket (round) used with olive-colored plugs.

(b) Gasket (rectangular) used with gold-colored plugs.

(a) Gasket (round) used with olive-colored plugs.

(b) Gasket (rectangular) used with gold-colored plugs.

Figure 57. Coupling Nut Gaskets and Closures for Electrical Plugs and Receptacles (Sheet 11 of 11)

NOMENCLATURE	INTER-CHANGEABLE PART	ENGINE USAGE	NOMENCLATURE	INTER-CHANGEABLE PART	ENGINE USAGE
CONTROL SYSTEM					
CONTROL			TURBOPUMPS		
ECA Package	502670-181	All	Fuel T/P	460180-51	J-2062 THRU J-2139.
	502670-251	J-2039-1 THRU J-2121.		460180-61	J-2140 THRU J-2146.
	502670-261	J-2039-1 THRU J-2130.		460180-71	J-2140 THRU J-2152.
	502670-381	J-2126 THRU J-2130, and J-2138.		460390-151	J-2062 THRU J-2139.
	502670-581	J-2039-1, J-2046 THRU J-2152.		460390-181	J-2062 THRU J-2139.
			G.G. Control Valve	309040-31	All
ELECTRICAL			LOX T/P	458175-81	J-2039-1 THRU J-2139.
Harness (Components to controller)	503157	All		458175-111	J-2039-1 THRU J-2139.
Ignition Probe	500750	All		458175-151	J-2039-1 THRU J-2139.
Seal Press/Act.	408767	All		458175-161	J-2140 THRU J-2152.
Ign. Detector Probe				458175-221	J-2039-1 THRU J-2139.
Switches, Press/Act.	308390	All		458175-231	J-2039-1 THRU J-2139.
PNEUMATIC				458175-241	J-2039-1 THRU J-2139.
Helium Regulator	558130-511	All		458175-251	J-2140 THRU J-2152.
	558130-531	All	VALVES		
Helium control valve	NA5-27273T2	All	Anti-Flood	556446	SI engines J-2075 THRU J-2087.
Purge Control V.	558126	All		557980	SI engines J-2075 THRU J-2152.
Purge Control V.	558126-11	All		309034	J-2039-1 THRU J-2139.
LOX Dome Purge	557755-11	All		309034-11	J-2140 THRU J-2152.
Manifold Check Valve			LOX Bleed	309029	J-2039-1 THRU J-2139.
SEALS, Press/Act.				309029-11	J-2140 THRU J-2152.
Bleed Reg. Pr. Port	408767	All	Main LOX	409969	J-2058
Controller Pr. Port	408767	All		411031	J-2062, J-2079, J-2083, J-2087, J-2091, J-2094, J-2095, J-2101, J-2103, J-2119, J-2122, J-2124, J-2128, J-2129.
Helium Control Bleed Port	408767	All		411031-11	J-2062 THRU J-2152.
Hel. Reg. to Hel. Accum. Hose	410893-3	All	Main Fuel	409920	All
Hel. Accum. Hose to Pri. Flt. Instr. Port	410876	J-2039-1 THRU J-2130.	Propellant Utilization Valve	251351-11	SI engines J-2075 THRU J-2130.
C/L to Filter	410876	All		251351-91	J-2039-1 THRU J-2139.
Filter to PFD	410876	All		251351-111	J-2039-1 THRU J-2130.
Close C/L to MFV	410876	All		251351-121	J-2039-1 THRU J-2134.
STDV, C/L to MFV	401220	All		251351-131	All
MFV open C/Pt.	410876	All		251351-141	J-2039-1 THRU J-2139.
Seq. I/L Pt.	410896-3	All		251351-151	J-2039-1 THRU J-2130.
C/L Open to OTBV	410876	All	Press. Act. Shutoff N. C. Valve	557817-11	J-2046, J-2056, J-2062.
C/L Close to OTBV	410220	All	Press. Act. Shutoff N. C. Valve	558127-11	J-2083 THRU J-2152.
Hel. HP/L to Reg.	459761-3	All	SEALS, Press Act.		
C/L Close to MOV	410876	All	LOX high P. P. Duct to Antiflood Line	410874	All
C/L Open to MOV	410876	All	ASI Fuel Line to T. C. Fuel Inlet Manifold	459767	All
MOV Seq. Valve to OTBV C/L	410876	All	ASI Fuel Line to Orifice Block	459767	All
Purge C/V to Purge Line (Outlet)	459724	All	LOX B S Line to G. G. Valve	410872	All
Purge C/V inlet	459724	All	ASI LOX Valve to LOX Line	459765	All
Purge C/V vent	410876	All	ASI LOX Line to Orifice Block	410876	All
Control to Purge C/V	410876	J-2039-1 THRU J-2082.	LOX High P R Duct to MOV	459764-5	All
Control to Purge C/V	459724	J-2083 THRU J-2152.	MOV to LOX Dome	459762-3	All
Purge Line to LOX Dome Purge	401205	All	Fuel Pump to High Press. Duct	459719	All
MOV to Fast Shutdown Valve	459724	All	LOX Pump Outlet to High P R Duct	459719-5	All
Purge Line to G. G. LOX Inj. Purge	410899	All	MFV to T/C Fuel Inlet Manifold	459762	All
Purge Line to Bleed Port	408767	All	MFV to High P R Duct	459764-5	All
STDV Bleed Line to STDV	459724	All	Fuel Bootstrap Line to G. G. Valve	410854	All
STDV Close Line to STDV	401212	All	FUEL TURBOPUMP GROUP		
Control Sol. to Spin Valve	410876	All	SEALS, Press/Act. Fuel Inlet Duct to Fuel Pump	459764-7	All
Instr. Port STDV (Under cover plate)	410896	All	GO5 Instr. Boss. on G. G. Injector	408767	All
STDV Open Line to STDV	410876	All			
PROPELLANT FEED SYSTEM					
DUCTS					
Fuel Inlet	409900-11	All			
	409320-11	J-2062 THRU J-2152.			
LOX Inlet	409899	All			
HOSE					
Oxidizer Bootstrap	408710	All			
	NA5-260113	All SI and 200 series SVE engines only.			

Section II
Component Interchangeability

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NOMENCLATURE	INTER-CHANGEABLE PART	ENGINE USAGE	NOMENCLATURE	INTER-CHANGEABLE PART	ENGINE USAGE
. . . GF4 G.G. Injector PR	408767	All	 LOX Flow Meter Flange	459719	All
. . . GG1 G.G. Chamber PR	408799	All	 PO3 LOX Pump Discharge PR	408767	All
. . . GG1A G.G. Chamber PR	408799	All	<u>MAIN OXIDIZER VALVE</u>		
. . . PF2 Fuel Pump Discharge PR	408767	All	. SEALS, Press/Act.		
<u>OXIDIZER TURBOPUMP GROUP</u>			. . MOV Seq. Valve	410867-3	All
. . SEALS, Press/Act.	408767	All	<u>PU VALVE</u>		
. . . PO8 PU Valve Inlet PR			. SEALS, Press/Act.		
. . . PO9 PU Valve Outlet PR	408767	All	. . PU Valve and PU Motor	459719-3	All
. . . PU Valve Inlet to Pump Manifold	459760-5	All	. . PU Valve Outlet to LOX Pump	459760-5	All
. . . Access Drive Pad to Access Port	459723	All	<u>FUEL TURBOPUMP</u>		
. . . PU Valve Outlet to Oxidizer Pump	459760-5	All	. SEALS, Press/Act.		
. . . LOX Inlet Duct to Pump	410863	All	. . Fuel G.G. Valve to G.G. Injector	410853-3	All
. . . LOX Heat Exchanger to Access Drive Pad	459756	All	<u>LOX TURBOPUMP</u>		
. . . HG2 Heat Exchanger Hot Gas Discharge PR	408799	All	. SEALS, Press/Act.		
. . . HGT2 Heat Exchanger Hot Gas Discharge Temp.	408799	All	. . LOX Manifold Carrier Flange Bleed	401201	All
. . . HO1 Heat Exchanger LOX Inlet PR	408767	All	. . LOX Volute to Carrier Flange Bleed	410864	All
. . . TG3 LOX Turbine Inlet PR	408799	All	. . TGT3 LOX Turbine Inlet Temp.	459721	All
. . . TG4 LOX Turbine Outlet PR	408799	All	<u>THRUST CHAMBER AND GIMBAL INSTL.</u>		
. . . PO2 LOX Pump Outlet PR	408767	All	. Augmented Spark Igniter (ASI)	309360-71	All
. . . Antiflood Valve to Heat Exchanger	459763-5	All	. Gimbal	208883-21	All
. . . Antiflood CK Valve to By Pass Line	410886	All	. SEALS, Press/Act.		
. . . TFT4 LOX Turbine Outlet Temp.	459721	All	. . CO3a Main LOX Injector PR	408767	All
<u>FUEL DUCT AND BLEED VALVE GROUP</u>			. . CF2a Main Fuel Injector PR	408767	All
. . SEALS, Press/Act.			. . CG1A Thrust Chamber PR	408767	All
. . . High PR Fuel Duct to Fuel Bleed Adapter	459761	All	. . CF1 Thrust Chamber Fuel Jacket in Manifold PR	408767	All
. . . Fuel Bleed Valve to Adapter	459761	All	. . IFT1 ASI Fuel Injector Temp.	408787	All
. . . GF5 G.G. Fuel Bleed Valve PR	408787	All	. . IOT1 ASI LOX Injector Temp.	408787	All
. . . GFT1 G.G. Fuel Inlet Temp.	459724	All	. . IO3 ASI LOX Injector PR	408767	All
. . . Fuel Flow Meter Flange	459719	All	<u>GAS GENERATOR AND EXHAUST INSTL.</u>		
. . . PF3 Fuel Pump Discharge PR	408767	All	. SEALS, Press/Act.		
. . . PFT1 Fuel Pump Discharge Temp.	459724	All	. . Fuel T/P Torque Plug to Exhaust Collector	459723	All
<u>OXIDIZER DUCT AND BLEED VALVE GROUP</u>			. . TGT2 Fuel Turbine Outlet Temp.	408799	All
. . SEALS, Press/Act.			. . TG2 Fuel Turbine Outlet PR	408799	All
. . . GOT2 LOX Inlet Temp.	459724	All	. . Instr. Boss on Cross-over Duct	408799	All
. . . GO2 G.G. LOX Bleed Valve PR	408767	All	. . TG8 Bypass Nozzle Upstream PR	408799	All
. . . POT3 LOX Pump Discharge Temp.	459724	All	. . TGT8 Bypass Nozzle Upstream Temp.	408799	All
. . . Cover to High PR Duct	410871	All	<u>VALVES</u>		
. . . LOX Bleed Valve to LOX High PR Duct	459761	All	. . OTBV	409930	J-2039-1, J-2046, J-2058, J-2062, J-2075, THRU J-2087, All
				409940	

Figure 58. Component Interchangeability List (Sheet 2 of 4)

Component Interchangeability

NOMENCLATURE	INTER-CHANGEABLE PART	ENGINE USAGE	NOMENCLATURE	INTER-CHANGEABLE PART	ENGINE USAGE
START SYSTEM INSTL.					
• STDV	304386	SII engines J-2039-1 THRU J-2152.	• Harness (Auxiliary Package to P154)	704488	All
• Valve Package Tank Support and Fill	304386-21 557998	All Engines not incorporating MD316, MD317, MD320, MD342, or MD351 changes.	• Harness (Auxiliary Package to P153)	704482	All
• SEALS, Press/Act.	557998-41	All	CUSTOMER CONNECT SYSTEM		
• Start Tank PR Switch	410870	All	• FLUID		
• Vent and Relief Valve	557848	SII and SIVB 200 series only, J-2039-1 THRU J-2152.	• Hose, Oxid T/P Seal	NA5-260061	All
	557848-11	SII and SIVB 200 series only, J-2039-1 THRU J-2152.	• Hose, Start Tank Vent-and-Relief Valve Drain	NA5-260147	All
	557848-21	SII, SIVB 200 series, and SIVB 500 series, J-2039-1 THRU J-2152.	• Hose, Start Tank Fill	NA5-260139	All
• Integral Tank	307571	J-2054 THRU J-2071, J-2074 THRU J-2087.	• SEALS, Press/Act.		
• Check Valve Manifold	307579 307599-41	All SIV restart engines only.	• Fuel Pump Drain	408767	All
• Emergency Vent Valve	558301-21	All	• Fuel Tank PR Line to T/C	410861	All
• Start Tank Discharge Hose	308890	All	• LOX Bleed Valve to Bleed Line	459760-3	All
• Start Tank Refill Hose	NA5-260043	All	• Fuel Bleed Valve to Fuel Bleed Line	459760-3	All
• SEALS, Press/Act.			• Ox. Turb. Seal Purge Check Valve	557755-11	All
• Instr. Boss Spin Line	408767	All	FLIGHT INSTRUMENTATION		
• STDV Discharge Line to Turbine Manifold	459720-3	All	• ELECTRICAL		
• STDV to Spin Line	459773-5	All	• Harness (Fuel Pump Pressure)	703250	J-2046, J-2056, J-2062.
• Spin Tank Orifice to Spin Tank Line	459770	All		704487	J-2039-1 THRU J-2103.
START SYSTEM GROUP			• Harness (Position Indicators to P101)	702626	J-2046.
• SEALS, Press/Act.				704478	All
• TFT1 Start Tank Temp.	459724	All	• AUXILIARY		
• STDV to Start Tank	459773-3	All	• Flight Instr. Package	704090-21	J-2060 THRU J-2137
• Start Tank to Vent and Relief Valve	459753	All	• PRIMARY		
• TF1 Start Tank PR	408767	All	• Flight Instr. Package	704095-41	J-2062 THRU J-2106.
• NNT1 Helium Tank Temp.	459724	All	• TRANSDUCER		
• Helium Fill and Discharge Manifold to Helium Tank	410890	All	• Transducer, Helium Tank	NA5-27412T35T	All
• SEALS, Press/Act.				NA5-27440T35T	All
• STDV to Pot Bleed	401204	All	• Transducer, Temp. Multiple Usage	NA5-27215T3	All
CUSTOMER CONNECT SYSTEM					
• ELECTRICAL			• Transducer, Temp. Multiple Usage	NA5-27215T5	All
• Harness (Transducer to P108)	704485	All	• Transducer, Temp. Heat Exchanger Outlet	NA5-27215T7	All
• Harness (Flow and Speed to P109)	704484	All	• Transducer, Temp. T/C Jacket	NA5-27321T2	All
• Harness (Temp. to P156)	704486-11	All	• Transducer, Temp. Multiple Usage	NA5-27323T6	All
• Harness (Control Package to P51)	503160	All	• Pick-up Magnetic Flow Rate, Fuel, and LOX	NA5-27331	All
• Harness (Controller to P54)	503158	All	• Transducer, Press. Fuel Inlet, LOX Outlet	NA5-27412T2T	All
• Harness (P.U.V. to P38)	503159	All		NA5-27440T2T	All
• Harness (Controller to P155)	704483	All	• Transducer, Press.	NA5-27412T10T	All
• Harness (Primary Package to P105)	704479	All		NA5-27440T10T	All
• Harness (Primary Package to P106)	704480	All	• Transducer, Press.	NA5-27412T15T	All
• Harness (Primary Package to P107)	704481	All		NA5-27440T15T	All
			• Transducer, Press. Oxid. Pump Discharge	NA5-27412T20T	J-2060 THRU J-2152.
				NA5-27440T20T	All
			• Transducer, Press. Oxidizer Pump	NA5-27412T05T	All
				NA5-27440T05T	All
			• Transducer, Press. Oxidizer Pump Out	NA5-27412T1T	All
				NA5-27440T1T	All
			• Transducer, Press.	NA5-27412T5T	All
				NA5-27440T5T	All
			• Transducer, Press.	NA5-27412T7LT	All
				NA5-27440T7LT	All

Figure 58. Component Interchangeability List (Sheet 3 of 4)

Section II
Component Interchangeability

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NOMENCLATURE	INTER- CHANGEABLE PART	ENGINE USAGE	NOMENCLATURE	INTER- CHANGEABLE PART	ENGINE USAGE
. . Transducer, Press.	NA5-27412T50T	All			
. SEALS, Press/Act.	NA5-27440T50T	All			
. . CO3 Main LOX Injection PR	408767	All			
. . CF2 Main Fuel In- Injection PR	408767	All			
. . CFT2 Main Fuel In- Injection Temp.	459724-3	All			
. . CFT2a Main Fuel In- Injection Temp. OK	459724-3	All			
. . HOT2 H.E. LOX Out- let Temp.	459721	All			

Figure 58. Component Interchangeability List (Sheet 4 of 4)

SECTION III

NUMERICAL INDEX

PART NUMBER	REPAIR CODE	FIG & INDEX NO	ZONE NO	QTY	PART NUMBER	REPAIR CODE	FIG & INDEX NO.	ZONE NO.	QTY	PART NUMBER	REPAIR CODE	FIG & INDEX NO	ZONE NO	QTY
AG33411	D3	15-44		4	AN520C10R20	F3	32-		1	K19572-3	D3	9-4		1
AG33411	D3	16-51			AN520C10R32	F3	4-		1	Label	F3	55A-4		1
AG35237	D3	23-35		2	AN520C10R40	F3	30-		1	Label	F3	55A-6		1
AN121526	F3	33-		28	AN520C10R8	F3	30-		10	LD152-0020-0375	F3	40-		3
AN121527	F3	33-		29	AN525-10R7	F3	14-		2	LD152-0020-0437	F3	40-		7
AN121529	F3	40-		12	AN535-0-2	F3	8-		4	LD152-0020-1000	F3	35-31		11
AN121530	F3	54-		5	AN565A1032H8	F3	4-63A		4	LD153-0010-0001	F3	28-		28
AN121531	F3	33-		4	AN804J4	F3	29-37		1	LD153-0010-0002	F3	21-105		4
AN310C16	F3	14-170		1	AN806-S2	F3	34-9		2	LD153-0010-0004	D3	23-28A		10
AN316-4	F3	35-		4	AN806-S2	F3	34-20		1	LD153-0010-0007	F3	19-10		179
AN316-4C	F3	53-		4	AN806-S5	F3	34-20		1	LD153-0010-0008	F3	4-48C		134
AN316-4R	F3	35-		2	AN814-2JL	F3	8-7		1	LD153-0010-0009	D3	8-92E		94
AN316C4R	F3	33-		127	AN814-4DL	F3	2-56B		4	LD153-0010-0010	F3	2-		431
AN316C5R	F3	33-		43	AN814-5D	F3	49-7		3	LD153-0010-0011	F3	31-91		5
AN316C6R	D3	23-54		16	AN814-5DL	F3	31-29		2	LD153-0010-0012	F3	25-58		21
AN316-6R	F3	45-		4	AN815-16J	F3	14-360E		1	LD153-0010-0013	F3	22-		146
AN316C7R	F3	14-50		2	AN815-4J	F3	29-42		1	LD153-0010-0014	D3	19-30		33
AN316C8R	F3	33-		4	AN818-16K	F3	14-360C		1	LD153-0010-0016	F3	39-		34
AN320-4	F3	44-		4	AN833-4J	F3	29-38		1	LD153-0010-0018	F3	36-		8
AN320C3	F3	35-		2	DELETED					LD153-0010-0020	F3	37-		4
AN320C4	F3	43-		8	AN901-4A	F3	24-19		3	LD153-0010-0025	F3	2-62		4
AN320D4	F3	43-		9	AR105C02318A1M	F3	18-26		1	LD153-0011-0012	F3	34-		4
AN340C6	F3	50-		3	ASBG6VSS3	F3	24-		9	LD153-0011-0014	F3	43-		2
AN4-11	F3	53-		4	AS30	F3	31-		20	LD153-0011-0016	F3	42-		12
AN4-12	F3	44-		6	AS30	F3	31-21			LD153-0011-0020	F3	43-		1
AN4-13	F3	53-		4	AS30	F3	31-26			LD153-0013-0001	F3	4-		73
AN4-17	F3	50-		4	AS30	F3	32-15			LD153-0013-0002	F3	2-		362
AN500D516-28	F3	34-		3	AS30	F3	32-20			LD153-0013-0003	F3	2-52		8
AN501AD10-10	F3	48-		2	AWDL15-101SS3	F3	21-15		ALT	LD153-0013-0004	F3	24-11		81
AN501AD10-12	F3	19-9		4	AW12SP10	F3	14-		ALT	LD153-0013-0005	F3	14-75		66
AN501AD10-16	F3	35-		4	AW20-5SP10	F3	14-		ALT	LD153-0013-0006	F3	14-80		42
AN501AD10-18	F3	55-		3	BALL	D3	10-3		1	LD153-0013-0007	F3	14-81		31
AN501AD10-8	F3	49-		4	B630412	D3	8-32		NP	LD153-0013-0008	F3	14-164		4
AN501AD416-10	F3	36-		75	HUDL15-101SS3	F3	21-15		1	LD153-0013-0010	F3	33-3D		2
AN501AD416-12	F3	41-		11	H19571-3	D3	9-3		1	MICRO	F3	56-		1
AN501AD416-16	F3	37-		6	H41-02	D3	8-31C		2	MS134352	D3	8-63		3
AN501AD416-22	F3	34-		4	H41-08	D3	8-68		2	MS16624-18	F3	2-37A		ALT
AN501AD416-6	F3	35-		5	IT2048	F3	4-30B		1	MS16624-18	F3	21-27C		ALT
AN501AD416-8	F3	35-		35	IT2048	F3	50-10		1	MS16625-4433	F3	22-7		1
AN501AD516-10	F3	37-		12	KNH5624T19SP	F3	22-73		12	MS16633-4025	D3	15-78		2
AN501AD516-12	F3	36-		3	KN428T-DFP	F3	20-9		44	MS16633-4031	D3	15-37		4
AN501AD516-16	F3	40-		4	DELETED					MS171462	D3	12-5		1
AN501AD516-8	F3	35-		4	K5BN5-10	F3	31-		1	MS171493	D3	8-62A		2
AN501AD616-10	F3	33-		20	K5BN5-2	F3	2-		13	MS171500	D3	26-18		1
AN500D516-28	F3	34-		3	K5BN6-2	F3	24-		ALT	MS171524	D3	8-92F		4
AN507C832R8	D3	10-1		3	K5BY5SSD5	F3	32-		1	MS171525	D3	19-49		3
AN520C10R10	F3	30-		2	KWB12-13	D3	14-		1	MS171534	D3	26-39		15
AN520C10R16	F3	4-		7	KWB20-10	D3	14-		2					
					KWB20-19	D3	14-		1					

Section III
Numerical Index

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PART NUMBER	REPAIR CODE	FIG & INDEX NO	ZONE NO	QTY	PART NUMBER	REPAIR CODE	FIG & INDEX NO	ZONE NO	QTY	PART NUMBER	REPAIR CODE	FIG & INDEX NO	ZONE NO	QTY
MS171553	F3	31-33		3	NAS1004-3A	F3	29-		15	NAS1283	D3	27-		1
MS20500-1032	F3	28-		1	NAS1004-3H	D3	15-16		12	NAS1407N9M10	F3	14-182A		48
MS20995N32-18	F3	7-6	AR		NAS1004-4H	D3	15-16A		2	NAS1593-225	F3	2-38		4
MS21208F4-20	D3	27-24		4	NAS1004-5A	F3	30-		12	NAS43DD1-40	F3	4-		38
MS21209F1-20	D3	12-30		1	NAS1004-52A	F3	28-166		6	NAS43DD3-21	F3	4-		1
MS21209F4-15	D3	12-31		14	NAS1004-52H	F3	28-180		1	NAS43DD3-24	F3	24-		3
MS21209F4-20	F3	28-		2	NAS1004-6A	D3	23-24		24	NAS43DD3-32	F3	28-147G		2
MS21919WH10	F3	30-53		1	NAS1004-6H	D3	23-24		8	NAS43DD3-40	F3	32-		13
MS21919WH34	F3	30-54		1	NAS1004-8H	D3	15-103		4	NAS43DD3-48	F3	4-		10
MS21919WH4	F3	30-15		5	NAS1005-13A	F3	32-61		1	NAS43DD3-64	F3	29-71G		2
MS21919WH6	F3	30-16		3	NAS1005-15A	F3	31-88		1	NAS43DD5-10	F3	31-92		2
MS21919WH8	F3	30-14		1	NAS1005-16A	F3	32-78		1	NAS43DD5-11	F3	2-		2
MS24665-377	F3	14-172		1	NAS1005-18A	F3	31-100		2	NAS43DD5-17	F3	32-64		1
MS24665-380	F3	14-222		1	NAS1005-19A	F3	32-72		1	NAS43DD5-8	F3	4-		1
MS25083-2BB3	F3	14-175		31	NAS1005-20A	F3	31-105		1	NAS43DD5-8	F3	2-53		3
MS25083-2BC4	F3	32-7		1	NAS1005-6H	D3	15-22		1	NAS43DD5-9	F3	31-103		2
MS25083-2BC6	F3	31-7		1	NAS1005-9H	D3	16-22		1	NAS43HT3-16	F3	28-147E		1
MS25083-2BC8	F3	2-56		1	NAS1006-14A	F3	29-77		1	NAS43HT3-20	F3	2-		1
MS25083-2BE3	F3	14-174		1	NAS1006-19A	F3	29-78		1	NAS43HT3-22	F3	28-		1
MS25083-2CC2	F3	32-		4	NAS1008-13H	F3	33-		4	NAS43HT3-24	F3	28-		1
MS25083-2CC3	F3	31-		26	DELETED					NAS43HT3-26	F3	2-		5
MS28775-014	F3	49-8		3	NAS1057T4-075	F3	14-8		1	NAS43HT3-32	F3	28-147G		60
MS28777-4	F3	29-40		2	NAS1057T4-106	F3	14-9		1	NAS43HT3-36	F3	28-147H		1
MS28778-12	F3	8-23		1	NAS1057T4-125	F3	14-10		1	NAS43HT3-48	F3	28-148		10
MS28778-4	F3	4-24		12	NAS1057T4-150	F3	14-11		1	NAS43HT3-80	F3	2-		3
MS28778-6	F3	14-89		1	NAS1057W3-075	F3	2-		4	NAS501-14H11A	F3	33-		8
DELETED					NAS1101-04H10	D3	15-6		6	NAS501-3H12A	F3	33-		4
MS29512-03	F3	15-67		1	NAS1101C04-7	F3	32-		12	NAS501-3H21A	F3	40-		3
MS29512-04	F3	2-56C		8	NAS1101C04-8	F3	28-		8	NAS501-3H27A	F3	40-		3
MS29512-05	F3	31-29A		2	NAS1101C04H10	D3	23-8		2	NAS501-3H7A	F3	34-		4
MS29512-08	F3	23-70		1	NAS1101C06H8	D3	15-4		8	NAS501-3-12	F3	33-		12
MS29512-021	F3	31-22		26	NAS1101C08-14	F3	8-2		6	NAS501-3-12A	F3	55-		2
MS29513-014	F3	32-25		1	NAS1101C08-28	F3	8-2		6	NAS501-3-13A	F3	55-		2
MS29513-111	F3	2-60A		1	NAS1101C3-10	F3	2-		102	NAS501-3-14	F3	54-		4
MS29513-116	F3	19-11		1	NAS1101C3-12	F3	8-12		30	NAS501-3-22	F3	34-		2
MS29513-123	F3	31-38		2	NAS1101C3-14	F3	28-143		19	NAS501-3-24	F3	34-		2
MS29513-127	F3	32-35		1	NAS1101C3-16	F3	2-		121	NAS501-3-27	F3	34-		4
MS29513-133	D3	15-34		5	NAS1101C3-17	F3	29-		1	NAS501-3-4A	F3	28-		5
MS29513-135	D3	11-12		1	NAS1101C3-18	F3	28-144		3	NAS501-3-5A	F3	29-71A		2
MS29513-138	D3	11-13		2	NAS1101C3-20	F3	2-		9	NAS501-3-7	F3	34-		8
MS29513-140	D3	19-6		1	NAS1101C3-22	F3	28-145		5	NAS501-4-7A	F3	33-35		10
MS29513-141	D3	19-46		3	NAS1101C3-24	F3	29-		3	NAS501-4-10	F3	54-		14
MS29513-147	D3	15-20		2	NAS1101C3-26	F3	29-71A		16	NAS501-4-11	F3	33-		16
MS29513-235	D3	19-21		1	NAS1101C3-28	F3	14-		2	NAS501-4-12	F3	35-		28
MS29513-239	D3	15-21		2	NAS1101C3-30	F3	28-145B		6	NAS501-4-12A	F3	55-		2
MS29513-263	D3	26-19		1	NAS1101C3-32	F3	14-		8	NAS501-4-13	F3	38-		14
MS35275-263	F3	14-176		2	NAS1101C3-34	F3	14-		4	NAS501-4-13A	F3	55-		4
MS35275-295	F3	35-		4	NAS1101C3-38	F3	30-		8	NAS501-4-26	F3	47-		2
MS35275-296	F3	35-		8	NAS1101C3-6	F3	28-		9	NAS501-4-4A	F3	29-		1
MS35276-263	F3	49-		4	NAS1101C3-7	D3	26-3		10	NAS501-4-5	F3	34-		9
MS35276-283	F3	35-63		6	NAS1101C3-8	F3	2-		298	NAS501-4-7	F3	48-		4
MS51923-157	D3	9-25		2	NAS1101C3-9	F3	28-147B		22	NAS501-4-7A	F3	55-		3
MS9021-276	F3	32-6		1	NAS1101C3H4	F3	28-185		3	NAS501-4H10A	F3	39-		22
MS9021-278	F3	31-6		1	NAS1101C3H8	F3	15-2		12	NAS501-4H11A	F3	33-		15
MS9025-09	F3	14-15		1	NAS1101C04H8	F3	28-147		2	NAS501-4H12A	F3	33-		12
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MS9101-02	F3	14-		1	NAS1101C4-18	F3	14-		3	NAS501-4H15A	F3	34-		8
MS9101-05	F3	30-		1	NAS1101C4-20	F3	14-		1	NAS501-4H16A	F3	35-		18
MS9101-55	F3	4-		1	NAS1101C4-24	D3	8-92A		4	NAS501-4H20A	F3	39-		3
MS9102-02	F3	14-		2	NAS1101C4H16	F3	28-12		6	NAS501-4H25A	F3	39-		
MS9102-03	F3	28-184		20	NAS1101C5H18	D3	15-87		10	NAS501-4H5A	F3	46-		9
MS9102-12	F3	22-27		2	NAS1101C6-14	F3	33-		12	NAS501-4H6A	F3	40-		6
MS9102-51	F3	14-359		13	NAS1102C3-10	F3	22-12		10	NAS501-5-10	F3	33-		40
MS9102-61	F3	14-403		1	NAS1102C3-12	D3	23-14		1	NAS501-5H10A	F3	33-		40
MS9103-14	F3	29-107		3	NAS1102C3-8	D3	16-14		8	NAS501-5H12A	F3	46-		3
M60CR256-8E	D3	8-79		4	NAS1102C4-12	D3	15-27		20	NAS501-5H4A	F3	34-		1
NAS1003-12A	F3	28-		4	NAS1169C3T10	D3	15-12		2	NAS501-5H5A	F3	42-		12
NAS1003-4H	F3	32-		4	NAS1190C02T4N	D3	8-80		4	NAS501-5H7A	F3	39-		8
NAS1003-5H	F3	23-36		8	NAS1191C3-12L	D3	23-36		8	NAS501-6-10	F3	35-		8
NAS1004-10	F3	29-		2	NAS1224C6L	D3	23-21		1					

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NA5501-6-6	F3	48-		4	NA5-26700	D3	8-26		1	NA5-27412T15T	F2	31-14		
NA5501-6H15A	F3	40-		6	DELETED					NA5-27412T15T	F2	31-17		
NA5501-6H17A	F3	40-		2	NA5-26726-T4	D2	35-35			NA5-27412T15T	F2	31-18		
NA5501-6H5A	F3	42-		16	DELETED					NA5-27412T15T	F2	32-11		
NA5501-6H6A	F3	42-		6	NA5-26726-T5	D2	35-35			NA5-27412T15T	F2	32-12		
NA5501-7-11	F3	35-		4	NA5-26931	F3	24-62		2	NA5-27412T15T	F2	32-13		
NA5501-7-8	F3	54-		1	NA5-26944	F2	25-30			NA5-27412T2T	F2	26-38D		2
NA5501-7H5A	F3	39-		24	NA5-26944	F2	29-92		1	NA5-27412T2T	F2	31-24		
NA5501-8H12A	F3	34-		12	NA5-26944	F2	54-20			NA5-27412T20T	F2	32-12		1
NA5501-8H13A	F3	33-		4	NA5-26945	F2	54-21			NA5-27412T35T	F2	31-9		2
NA5501-8H16A	F3	33-		4	NA5-26945-3	F2	54-21			NA5-27412T35T	F2	32-10		
NA5501-8H6A	F3	35-		8	NA5-26954	F2	21-97		1	NA5-27412T5T	F2	31-9		2
NA5501-9H6A	F3	37-		4	NA5-26954	F2	29-48			NA5-27412T5T	F2	31-12		
NA5501-9H7A	F3	36-		4	NA5-26954	F2	54-1			NA5-27412T50T	F2	31-11		2
NA5509-6	F3	34-		6	NA5-27215T3	F2	25-49		8	NA5-27412T7LT	F2	31-15		1
NA5620-4	D3	15-7		6	NA5-27215T3	F2	32-90B			NA5-27440T05T	F2	31-8		ALT
NA5620-6	D3	23-6		4	NA5-27215T5	F2	14-280		10	NA5-27440T1T	F2	31-23		ALT
NA5879C04W	F3	28-		20	NA5-27215T5	F2	14-285			NA5-27440T10T	F2	31-10		ALT
NA5879C06	D3	23-27A		2	NA5-27215T5	F2	14-326			NA5-27440T10T	F2	31-13		ALT
NA5879C3W	F3	2-		455	NA5-27215T5	F2	14-357			NA5-27440T10T	F2	31-14		ALT
NA5879C4W	F3	2-		135	NA5-27215T5	F2	25-12			NA5-27440T10T	F2	31-16		ALT
NA5879C5	D3	8-4		8	NA5-27215T5	F2	32-83			NA5-27440T10T	F2	31-17		ALT
NA5879C6	F3	14-154		3	NA5-27215T5	F2	32-90			NA5-27440T10T	F2	31-18		ALT
NA5-260043	F2	24-37		1	NA5-27215T7	F2	32-98		1	NA5-27440T10T	F2	31-19		ALT
DELETED					NA5-27273T1	F2	-17		1	NA5-27440T10T	F2	32-17		ALT
NA5-260045	F2	4-14		1	NA5-27273T1	F2	-123			NA5-27440T10T	F2	32-18		ALT
NA5-260045	F2	21-43			NA5-27273T2	F2	-17A		1	NA5-27440T15T	F2	31-10		ALT
NA5-260056	F2	29-96		1	NA5-27273T2	F2	-124			NA5-27440T15T	F2	31-13		ALT
NA5-260056	F2	54-25			NA5-27273T2	F2	50-20			NA5-27440T15T	F2	31-14		ALT
NA5-260056	F2	54-25			NA5-27273T1	F2	8-123		2	NA5-27440T15T	F2	31-17		ALT
NA5-260057	F2	29-98		1	NA5-27273T2	F2	8-124		1	NA5-27440T15T	F2	32-11		ALT
NA5-260057	F2	54-22			NA5-27306	F2	43-10		1	NA5-27440T15T	F2	32-12		ALT
NA5-260058	F2	29-91		1	NA5-27306	F2	26-11			NA5-27440T15T	F2	32-13		ALT
NA5-260058	F2	54-23			NA5-27307	F2	19-8		1	NA5-27440T2T	F2	31-24		ALT
NA5-260059	F2	29-97		ALT	DELETED					NA5-27440T20T	F2	32-12		ALT
NA5-260059	F2	54-24			NA5-27321T2	F2	32-87A		2	NA5-27440T35T	F2	31-9		ALT
NA5-260060	F2	29-86		1	NA5-27321T2	F2	32-88			NA5-27440T35T	F2	32-10		ALT
NA5-260060	F2	54-19			NA5-27323T3	F2	18-46		11	NA5-27440T5T	F2	31-9		ALT
NA5-260061	F2	29-108		1	NA5-27323T3	F2	20-50			NA5-27440T5T	F2	31-12		ALT
NA5-260061	F2	54-25A			NA5-27323T3	F2	22-63			NA5-27440T50T	F2	31-11		ALT
NA5-260067	F2	29-85		1	NA5-27323T3	F2	32-96			NA5-27440T7LT	F2	31-15		ALT
NA5-260113	F2	14-46		1	NA5-27323T6	F2	18-46		ALT	NA5-27441	F2	31-124		2
NA5-260114	F3	18-29		1	NA5-27323T6	F2	20-50		1	NA5-27441	F2	31-125		
NA5-260115	F3	18-23		1	NA5-27323T6	F2	22-63		ALT	NA5-27441	F2	32-91B		1
NA5-260124	F2	21-97		1	NA5-27323T6	F2	31-121		3	NA5-27441	F2	32-92		
NA5-260124	F2	29-48			NA5-27323T6	F2	31-122			NA5-27448T1	F2	2-37		4
NA5-260124	F2	54-1			NA5-27323T6	F2	32-96			NA5-27448T1	D2	21-27B		2
NA5-260125	F2	29-96		1	NA5-27325T1	F2	20-55		1	NA5-27448T1	F2	34-15		
NA5-260125	F2	54-25			NA5-27326	F2	18-43		1	NA5-27448	F2	2-37		2
NA5-260139	F2	29-95		1	NA5-27328	F2	18-32		1	NA5-27448	F2	34-15		
NA5-260139	F2	54-21			NA5-27331	F2	14-354		6	NA5-27453	F2	55-42C		
NA5-260140	F2	29-86		1	NA5-27331	F2	14-291			NA5-27466T114S	X	28-206		1
NA5-260140	F2	54-19			NA5-27331	F2	32-81			NA5-27466T114S	X	35-44		
NA5-260147	F2	29-97		1	NA5-27331	F2	32-82			NA5-27466T1198S	X	28-210		1
NA5-260147	F2	54-24			NA5-27342T4	F2	18-45		1	NA5-27466T1198S	X	35-52		
NA5-260164	F2	21-97		1	NA5-27361	F2	55-42C			NA5-27480	F2	17A-14		1
NA5-260164	F2	29-48			NA5-27382	F2	20-58		1	NA5-27480	F2	28-222		
NA5-260164	F2	54-1			NA5-27412T05T	F2	31-8		1	NA5-27480	F2	35-50		
DELETED					NA5-27412T1T	F2	31-23		1	NA5-27502T161P	X	28-211		1
NA5-260167	F2	4-17		1	NA5-27412T10T	F2	31-10		9	NA5-27502T161P	X	35-51		
NA5-260169	D3	11-29A		2	NA5-27412T10T	F2	31-13			NA5-27502T2029P	X	28-207		1
NA5-260169	D3	12-29A			NA5-27412T10T	F2	31-14			NA5-27502T2029P	X	35-46		
DELETED					NA5-27412T10T	F2	31-16			NA5-28203T1	F2	17A-9		1
NA5-260235	F1	21-3A		1	NA5-27412T10T	F2	31-17			NA5-28203T1	F2	28-223		
NA5-260235	F1	33-25			NA5-27412T10T	F2	31-18			NA5-28203T1	F2	35-45		
NA5-260262	D3	17A-13		1	NA5-27412T10T	F2	31-19			NA5-28210	F2	8-131		1
NA5-260337	D3	8-133		1	NA5-27412T10T	F2	32-17			NA5-28211	F3	14-249A		1
NA5-260338T1	D3	14-249C		1	NA5-27412T10T	F2	32-18			NO. 6-1/2	F3	33-14		2
NA5-26628	F3	18-17		1	NA5-27412T15T	F2	31-10		8	NO. 7	F3	33-15		2
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PA534-30	F3	32-107		1	RD111-1010-3528	F3	14-371		6	RD111-4011-0426	F3	22-		1
PELLET	X	15-35		6	RD111-1010-3643	F3	29-75		1	RD111-4011-3413	F3	14-		4
PELLET	X	15-36			DELETED					RD111-4011-3417	F3	28-153		2
PELLET	X	15-75			RD111-1011-0410	D3	19-3		4	RD111-4011-3420	F3	24-158		1
PELLET	X	16-			RD111-1011-0610	F3	43-		4	RD111-4011-3426	F3	28-158		2
RB0150-026	F3	56-			RD111-1011-0611	F3	20-59		2	RD111-4011-3440	F3	28-157		4
RB0195-002	F3	50-28		AR	RD111-1011-0628	D3	26-15		16	RD111-4011-3442	F3	28-187		1
RB0195-002	F3	55A-2			RD111-1011-3306	F3	31-107		2	RD111-4011-6417	F3	28-		4
RD111-1003-0410	F3	24-28A		4	DELETED					RD111-4020-3819	F3	21-58		1
RD111-1007-0323	D3	9-1		4	DELETED					RD111-8001-0301	F3	49-		16
RD111-1009-3307	F3	21-63		1	RD111-1016-3544	F3	20-29		6	RD111-8001-0302	F3	50-30A		2
RD111-1009-3308	F3	14-		2	RD111-3002-7420	F3	20-34		11	RD111-8001-0303	F3	50-30B		1
RD111-1009-3310	F3	4-		4	RD111-3002-7428	F3	20-33		34	RD111-8001-0401	F3	42-		26
RD111-1009-3319	F3	14-		1	RD111-3003-0404	D3	8-96		2	RD111-8001-0402	F3	39-		4
RD111-1009-3332	F3	4-		4	DELETED					RD111-8001-0403	F3	54-		4
RD111-1009-3404	F3	24-29		2	RD111-3003-0408	D3	8-92B		2	RD111-8001-0501	F3	42-		4
RD111-1009-3406	F3	2-69		1	RD111-3003-0414	F3	8-126		2	RD111-8001-0601	F3	42-		4
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DELETED					RD111-3005-0406	D3	8-43A		8	RD114-1003-1004	F3	29-41		2
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RD111-1009-3426	F3	4-14B		6	RD111-3006-4215	F3	18-		4	RD114-8003-1003	D3	12-22		1
RD111-1009-3428	F3	24-38		6	RD111-3006-4216	F3	31-2		15	RD114-8003-1004	D3	11-15		9
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RD153-5005-0003		28-		1	RD261-2006-0014	F3	31-24E		17	RD273-1029-1001	F3	4-18C		1
RD153-7001-0001		29-		8	RD261-2006-0016	F3	57-		1	RD273-1029-1002	F3	29-		1
RD153-7002-0001	F3	29-		8	RD261-2006-0018	F3	57-		1	RD273-1029-2001	F3	14-		2
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RD170-6006-0001	F3	33-34		6	RD261-2006-0022	F3	57-		1	RD273-1029-4002	F3	24-36A		1
RD170-8006-XXXX	F3	55A-6		1	RD261-2006-0024	F3	57-		1	RD273-1029-5001	F3	14-360A		1
RD170-8007-XXXX	F3	55A-4		1	RD261-2006-0028	F3	57-		1	RD273-1030-0023	F3	4-19C		1
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RD171-1020-0001	D3	15-100		4	RD261-2006-0036	F3	57-		1	RD273-8002-XXXX	F3	22-11		6
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RD171-1025-0001	F3	1-		1	RD261-3010-0012	D3	8-113		1	RD393-5006-XXXX	F3	55A-3		2
RD171-1044-0001	D3	15-100		1	RD261-3010-0014	D3	8-76		1	RD421-5001-0012	F3	2-58A	AR	
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RD251-4105-0184	F3	14-251		1	RD273-1023-2005	F3	4-18C		1	RE127-2006-0020	F3	29-		1
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RK395-10072-021	F3	51-3			RX20058-11	F3	54-10			RX20660-33	F3	41-3		
RK395-10076	F3	33-29		2	RX20058-11	F3	54-18			RX20660-33	F3	42-13		
RK395-10076	F3	46-3			RX20183	F3	39-		1	RX20660-33	F3	43-6		
RK395-10076-011	F3	35-3		8	RX20185	F3	33-		1	RX20660-33	F3	46-6		
RK395-10076-011	F3	35-8			RX20190	F3	35-		2	RX20660-33	F3	47-2		
RK395-10076-011	F3	35-10			RX20191	F3	49-		1	RX20660-33	F3	48-10		
RK395-10076-011	F3	35-12			RX20192	F3	50-		1	RX20660-33	F3	52-2		
RK395-10076-011	F3	35-20			RX20602	F3	42-8		1	DELETED				
RK395-10076-011	F3	40-2			RX20603-41	F3	43-2		1	RX20660-33	F3	52-6		
RK395-10076-021	F3	39-		1	RX20606-11	F3	35-38		8	RX20660-33	F3	53-9		
RK395-10096	F3	33-18		2	RX20606-11	F3	35-69		4	RX20660-33	F3	55-2		
RK395-10096	F3	33-18A			RX20606-11	F3	39-2			RX20660-33	F3	55-6		
RK395-10097	F3	33-19		2	RX20610-131	F3	40-12		1	RX20660-33	F3	55-8		
RK395-10098	F3	33-17		8	RX20610-141	F3	35-23		3	RX20660-33	F3	55-11		
RK395-10099	F3	33-20		1	RX20610-141	F3	37-5			RX20660-33	F3	55-18		
RK395-10101	F3	33-16		ALT	RX20610-171	F3	48-13		1	RX20660-33	F3	55-23		
RK395-10102	F3	33-16		1	RX20610-181	F3	40-5		3	RX20660-33	F3	55-34		
RK395-10107	F3	44-2		1	RX20610-181	F3	48-14			RX20660-33	F3	55-39		
RK395-10113	F3	37-11		1	RX20610-201	F3	35-2		4	RX20660-35	F3	48-16		1
RK395-10124	F3	33-1		4	RX20610-201	F3	35-13			RX20660-43	F3	48-17		1
RK395-10124	F3	38-5			DELETED					RX20660-45	F3	33A-2		1
RK395-10124	F3	38-14			RX20610-21	F3	35-15		6	RX20660-55	F3	36-5		3
RK395-10124-011	F3	33-1		ALT	RX20610-21	F3	40-3			RX20660-55	F3	36-		
RK395-10132	F3	33-13		1	RX20610-21	F3	43-4			RX20660-55	F3	55-3		
RK395-40007-201	F3	33-21		2	RX20610-21	F3	48-9			RX20660-59	F3	39-11		1
RK395-40007-201	F3	54-13		2	RX20610-21	F3	55-37			RX20660-59	F3	42-4		1
RK395-40007-211	F3	33-22		1	RX20610-241	F3	35-27		2	RX20660-61	F3	55-32		2
RK395-40007-211	F3	54-14		1	RX20610-241	F3	46-15			RX20673-21	F3	50-19		3
RK395-40016	F3	33-5		4	RX20610-31	F3	37-3		3	RX20673-21	F3	51-2		
RK395-40016	F3	38-13			DELETED					RX20673-21	F3	55-38		
RK395-40016-011	F3	33-4		4	RX20610-321	F3	43-5		1	RX20673-31	F3	50-2		1
RK395-40016-011	F3	38-10			RX20610-71	F3	50-12		1	RX20673-71	F3	55-4		2
RK395-40016-021	F3	33-6		8	RX20610-81	F3	50-3		2	RX20673-71	F3	55-8		
RK395-40016-021	F3	38-3			RX20610-81	F3	55-42			RX20674-171	F3	46-8		2
RK395-40050	F3	33-3A		24	RX20621	F3	46-9		2	RX20713	F3	39-3		2
RK395-40050	F3	38-7			RX20621	F3	54-7			RX20713	F3	40-6		
RK395-40050	F3	38-16			RX20621-21	F3	33A-6		8	RX20714	F3	39-7		2
RK395-44050	F3	33-		20						RX20714	F3	40-8		

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PART NUMBER	REPAIR CODE	FIG & INDEX NO.	ZONE NO.	QTY	PART NUMBER	REPAIR CODE	FIG. & INDEX NO.	ZONE NO.	QTY	PART NUMBER	REPAIR CODE	FIG & INDEX NO.	ZONE NO.	QTY
RX20717-51	F3	42-9		2	ST39500353RK003	F3	38-16			103844	F3	29-70		2
RX20717-51	F3	43-7			ST39500363RK001	F3	48-27		2	103847	F3	29-21B		1
RX20720	F3	39-6		1	ST39500391RK001	F3	33-31		1	103850	U	1-7		1
RX20739	F3	49-2		4	ST39500391RK011	F3	33-36		1	103850	U	23-		
RX20765	F3	33-1		2	ST39500391RK013	F3	33-38		1	103850	U	29-		
RX20773	F3	37-6		1	ST39500391RK021	F3	33-40		1	105802	F2	14-370		1
DELETED					ST39500392RK001	F3	33-46		2	105802	F2	29-114		
RX20774-11	F3	41-5		2	ST39500392RK009	F3	33-54		1	105802-11	F2	14-370		1
RX20774-11	F3	46-7			ST39500392RK011	F3	33-52		1	105802-11	F2	29-114		
RX20781-21	F3	33A-1		2	ST39500393RK001	F3	33-33		1	105810	U	1-		1
RX20781-21	F3	33A-4			ST39500393RK001	F3	33-42		1	105816	F3	29-2		2
RX20788-11	F3	48-2		1	ST39500393RK001	F3	33-48		2	105821	F3	29-25		1
RX20799-131	F3	33-9		2	ST39500395RK003	F3	33-51		1	105823	F3	22-24		1
RX20799-151	F3	35-6		2	ST39500395RK003	F3	33-57		1	105824	F3	29-17		2
RX20799-151	F3	35-18			ST39500396RK001	F3	42-5A		1	106329	F3	29-		1
RX20799-51	F3	33-7		4	ST39500396RK011	F3	42-2A		1	106331	F3	29-		1
RX20799-51	F3	46-24			ST39500396RK021	F3	42-2A		1	106344	X1	29-99		1
RX20799-61	F3	33-8		4	ST39500400RK016	F3	55-46		1	106344-3	X	29-		1
RX20799-61	F3	46-26			ST39500422RK003	F3	33-45		3	DELETED				
RX20799-71	F3	33-10		2	ST39500422RK005	F3	33-45		9	106455	F3	4-40		3
RX20799-71	F3	46-22			ST39500440RK003	F3	34-20		1	106455	F3	31-		
RX20823-21	F3	35-21		1	ST39500440RK009	F3	33-27		2	106467	F1	29-76		1
DELETED					ST39500440RK013	F3	33-28		2	106467-11	F1	29-76		1
RX20823-41	F3	38-4		1	ST3950052RK001	F3	40-11		1	106468	F3	21-34		1
RX20845-21	F3	48-11		1	ST3950101RK001	F3	55-41		1	106468	F3	29-82		
RX20856-11	F3	34-13		1	ST3950107RK001	F3	53-2		4	106469	F3	29-61		1
RX20867-21	F3	35-5		4	ST3950107RK001	F3	53-8			106470	F3	29-58		1
RX20867-21	F3	35-17			ST3950107RK011	F3	49-3		1	106471	F3	29-69		1
RX20868-201	F3	46-4		1	ST3950118RK001	F3	33-18A		4	106626	F2	29-87		1
RX20868-211	F3	46-11		1	ST3950118RK001	F3	54-2			106626	F2	54-8		
RX20874-21	F3	35-		12	ST3950118RK001	F3	54-5			106627	F2	29-93		1
RX20892	F3	43-11		1	ST3950118RK011	F3	33-19		4	106627	F2	54-11		
RX20892-11	F3	40-10		1	ST3950118RK011	F3	54-9			106628	F3	29-		1
RX20899	F3	33-12		2	ST3950118RK011	F3	54-12			106634	F3	29-4		2
RX20900	F3	33-11		2	ST3950118RK021	F3	54-26		7	106635	X1	29-43		1
RX20934-11	F3	36-3		2	ST3950118RK021	F3	33-17			106842	F3	29-72		1
RX20934-11	F3	37-4			ST3950118RK031	F3	33-20		1	106844	F3	29-		1
RX20934-21	F3	36-2		2	ST3950127RK021	F3	42-10		1	106845-11	F2	29-100		1
RX20934-21	F3	37-2			ST3950127RK031	F3	42-11			106845-11	F2	54-4		
RX20940	F3	50-14		1	ST3950166RK001	F3	34-4		2	106848	F3	29-71		1
RX20940-11	F3	50-22		1	ST3950166RK001	F3	34-17		1	106852	X1	29-26		1
RX20940-21	F3	50-23		1	ST3950184RK003	F3	50-11		1	106852-21	X1	29-26		1
RX20941-11	F3	33-13		1	ST3950243RK0191	F3	35-54		2	106852-31	X1	29-26		1
DELETED					ST3950263RK001	F3	33-26		1	106854	M1	29-14		1
RX20944	F3	45-2		1	ST3950269RK01	F3	55-		1	106854-3	X	29-		1
RX50013	F3	43-		1	ST3950272RK011	F3	35-74		1	106856	M1	29-47		1
RX50018	F3	48-		1	ST3950278RK021	F3	35-57		2	106856-3	X	29-		
RX50020	F3	47-		1	ST5640004RE0002	F3	28-216		2	106858	M1	29-23		1
RX50021	F3	36-		1	S10519-1	D3	17-9		6	106858-3	X	29-		1
RX50022	F3	37-		1	S11052-25Q	D3	8-33		NP	106859	M1	29-46		1
RX50031	F3	52-		2	TRB8158	D3	11-5		1	106859-3	X	29-		1
RX50033	F3	44-		1	TS1101C4H16M	F3	2-		4	106861	X1	29-10		1
RX50034	F3	51-		1	TS1101C4H28M	F3	2-		4	106861	X1	55-24		
RX50042	F3	34-		1	TS1011C6H8M	F3	43-		6	106865	F3	29-3A		1
RX50080	F3	46-		1	TS1101C6-10M	F3	33-		48	106869	F3	21-99		1
RX50102	F3	53-		1	TS1101C6-10M	F3	38-			106879-11	X1	29-10		1
RX50106	F3	53-		1	K5133-31C	F3	23-57		2	106879-11	X1	55-24		
RX50121	F3	45-		1	O500-3-3TG	F3	18-		1	106886	X1	29-10		1
RX50126	F3	41-		1	093001	D3	8-49B		NP	106886	X1	55-24		
SR086	D3	8-121E		4	10-416277-4	F3	17A-9B		1	106902	F3	29-		1
ST3950009RK001	F3	54-2		ALT	10-416277-98	F3	17A-14B		1	106903	F3	29-		1
ST3950009RK001	F3	54-5		ALT	10-438194-111	F3	17A-9A		1	106906	M1	29-45		1
ST3950009RK001	F3	54-9		ALT	10-483194-111	F3	17A-14A		1	106906-3	X	29-		
ST3950009RK001	F3	54-12		ALT	101719-11	F3	29-5		2	106908	X1	29-36		1
ST3950009RK021	F3	54-26		ALT	101719-31	F3	29-3		1	106909	X1	29-33		1
DELETED					101720	F3	29-1		2	106913	F1	29-33		1
ST3950031RK001	F3	54-17		2	101721-3	F3	29-4A		4	106917	M	29-86B		1
ST3950032RK001	F3	54-16		2	101721-5	F3	29-2A		4	106917-3	X	29-		1
ST39500339RK011	F3	34-6		1	103826	U	1-		1	1185-06CNVX207	D3	15-19		15
ST39500340RK011	F3	34-7		1	103838	F1	29-21		1	1185-06CNVX207	D3	16-18A		
ST39500342RK011	F3	34-8		1	103838-11	F1	29-21		1					
ST39500343RK001	F3	34-2		1	103841	F3	21-110		2					
ST39500344RK021	F3	55-47		1	103843	M1	29-27		1					
ST39500353RK003	F3	33-3B		24	103843-3	X	29-		1					
ST39500353RK003	F3	38-7												

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PART NUMBER	REPAIR CODE	FIG. & INDEX NO.	ZONE NO.	QTY	PART NUMBER	REPAIR CODE	FIG. & INDEX NO.	ZONE NO.	QTY	PART NUMBER	REPAIR CODE	FIG. & INDEX NO.	ZONE NO.	QTY
1185-06CNVX207	F3	17A-20		3	146002-17	F3	56-13		1	19-501743-4	F3	28-98		5
1185-06CNVX207	D3	23-18B			146002-19	F3	56-10		1	19-501743-5	F3	28-99		2
1185-06CNVX207	D3	23-18C			146002-23	F3	56-9		1	19-501745-2	F3	2-4		7
1185-2CNVX246	D3	15-98		2	146002-25	F3	56-6		1	19-501745-2	F3	28-100		
1191-3CNVX285	F3	15-19B		48	146002-27	F3	56-3		1	19-501745-3	F3	2-5		14
1191-3CNVX285	D3	15-89A			146002-29	F3	56-4		1	19-501745-3	F3	28-101		
1191-3CNVX285	D3	15-97			146002-3	F3	56-2		1	19-501745-4	F3	28-102		8
1191-3CNVX285	D3	15-97			146002-33	F3	56-5		1	19-501745-4	F3	28-215		
1191-3CNVX285	F3	16-18B			146002-5	F3	56-1		1	19-501745-6	F3	28-103		1
1191-3CNVX285	F3	19-47			146002-7	F3	56-7		1	19-501745-6	F3	28-204		
1191-3CNVX285	D3	23-44			146002-9	F3	56-11		1	19-502958-2	D3	2-57		1
1191-3CNV0285	D3	23-44		8	146003-3	F3	56-15		4	19-502958-3	D3	2-58		1
1191-4CNV0375	F3	17A-17		6	146003-5	F3	56-16		4	19-502958-6	D3	2-59		1
1191-4CNV0500	F3	17A-18		4	146004	F3	56-17		3	19-702996-1	F3	31-37		2
1191-4CNVX250	D3	19-48		4	146005	F3	56-18		1	19-702996-1	F3	32-26		
1191-4CNVX375	D3	11-3		223	146005-3	F3	56-20		1	19-702996-10	F3	32-34		1
1191-4CNVX375	D3	15-89			146005-5	F3	56-19		1	19-702996-17	F3	31-31		2
1191-4CNVX375	D3	15-97A			146007	F3	56-25		4	19-702996-17	F3	32-28		
1191-4CNVX375	D3	15-98A			146009-3	F3	56-32		1	19-702996-18	F3	32-30		1
1191-4CNVX375	D3	16-56A			146009-5	F3	56-33		1	19-702996-25	F3	31-34		1
1191-4CNVX375	D3	16-80A			146010-3	F3	56-34		1	19-702996-26	F3	32-32		1
1191-4CNVX375	D3	19-20B			146010-5	F3	56-35		1	19-704548	X	2-		AR
1191-4CNVX375	D3	19-39			146011	F3	56-24		2	19-704548-2	X	28-		AR
1191-4CNVX375	D3	23-49			146012-3	F3	56-36		1	19-704548-3	X	28-		AR
1191-4CNVX375	F3	31-5			146012-5	F3	56-37		1	19-704548-4	X	28-		AR
1191-4CNVX375	F3	32-5			146013-1	F3	56-28		1	19-704549	X	28-		AR
1191-4CNV0375	D3	15-118		12	146013-2	F3	56-29		1	19-704549-11	X	28-		AR
1191-4CNV0375	F3	26-38			146014-1	F3	56-30		1	19-704549-2	X	28-		AR
1191-4CNVX500	D3	26-17		22	146014-2	F3	56-31		1	19-704549-3	X	28-		AR
1191-4CNV0500	F3	26-37		6	146014-1	F3	56-22		1	19-704549-4	X	28-		AR
1191-6CNV0750	F3	26-35		24	146016-2	F3	56-23		1	19-704549-7	X	28-		AR
1191-8CNVX750	F3	16-80B		16	146019-1	F3	56-26		1	19-704549-9	X	28-		AR
1191-9CNVX844	F3	15-98B		48	146019-2	F3	56-27		1	19-704550	X	28-		AR
1191-9CNVX844	F3	16-80C			146052	F3	56-75		1	19-704550-4	X	28-		AR
12100CR12	F3	14-180		2	146053	F3	56-76		1	DELETED				
DELETED					146054-3	F3	56-77		1	206276	U	1-4		1
12100CR2	F3	4-81		4	146054-5	F3	56-79		1	206276	U	21-		
12100CR2	F3	14-182			146054-7	F3	56-80		1	206283	F3	14-72		1
DELETED					146054-9	F3	56-78		1	206292	F3	22-75		1
12100CR4	F3	4-77		2	156002	D3	8-107		2	206584-15	F3	24-159		1
12100CR4	F3	4-77A			1704-18Y	F3	41-7		1	206606-101	A1	21-21		
12100PL25	F3	8-109		1	18-146001		56-		1	206606-111	A1	21-21		
12130CR16	F3	17A-11		1	18-146001-10		56-		1	206606-131	A1	21-21		1
12130CR8	F3	17A-10		2	18-146006		56-		1	206606-141	A1	21-21		1
12130PL12	F3	15-110		1	18-146020		56-		1	206606-151	A1	21-21		1
DELETED					18-406020-10		56-		1	206606-161	A1	21-21		1
12130PL14	F3	4-68		4	18-146024		56-		1	206606-81	A1	21-21		
12130PL14	F3	8-14			18-146055		56-		1	208021-11	D2	21-21A		
12130PL14	D3	8-97			18-209747		56-		1	208883-21	D2	21-1		
12130PL16	D3	8-20		5	18-209747-10		56-		1	208883-41	D2	21-1		1
12130PL16	F3	8-130		4	18-209750		56-		1	209732-71	F2	24-110A		1
DELETED					18-209750-10		56-		1	209732-71	F2	55-31		
12130PL17	F3	4-67		6	18-209750-20		56-		1	209736-13	F3	56-66		14
12130PL17	F3	8-13			DELETED					209736-15	F3	56-68		14
12130PL26	D3	9-20		4	19-404835-1	D2	21-21C			209736-17	F3	56-70		14
DELETED					19-409872	D3	23-35		2	209736-19	F3	56-72		14
12130PL30	D3	9-18		2	19-501743-12	F3	28-89		2	209736-23	F3	56-74		14
12130PL38	D3	9-12		2	19-501743-14	F3	28-90		2	209736-3	F3	56-58		14
12130PL8	D3	8-19		9	19-501743-15	F3	28-91		1	209736-5	F3	56-60		14
12130PL8	F3	8-87			19-501743-16	F3	28-212		1	209736-7	F3	56-62		14
12130PL8	F3	8-129		8	19-501743-16	F3	28-92		2	209736-9	F3	56-64		14
12130PL9	D3	8-98		3	19-501743-18	F3	28-208		1	209738	F3	56-53		13
121314-2	F3	2-39			19-501743-17	F3	2-3		5	209739	F3	56-50		52
12553	F3	2-37E		2	19-501743-17	F3	28-93			209740	F3	56-52		40
12553	F3	21-27G			19-501743-18	F3	28-94		1	209741	F3	56-51		2
13-1806	D3	23-42		1	19-501743-19	F3	28-95		4	209744-13	F3	56-65		2
14277	F3	2-37G		2	19-501743-2	F3	2-1		11	209744-15	F3	56-67		2
14277	F3	21-27J			19-501743-2	F3	28-96			209744-17	F3	56-69		2
146002-13	F3	56-8		1	19-501743-3	F3	2-2		23	209744-19	F3	56-71		2
146002-15	F3	56-12		1	19-501743-3	F3	28-97			209744-23	F3	56-73		2

PART NUMBER	REPAIR CODE	FIG & INDEX NO	ZONE NO	QTY	PART NUMBER	REPAIR CODE	FIG & INDEX NO	ZONE NO	QTY	PART NUMBER	REPAIR CODE	FIG & INDEX NO	ZONE NO	QTY
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209744-27	F3	56-14		6	303402	F1	24-69		1	304386-21	F1	24-20		1
209744-3	F3	56-57		2	303402-11	F1	24-69		1	308064-47	D3	23-43		1
209744-5	F3	56-59		2	303402-11	F1	25-48			308756	D3	26-6		1
209744-7	F3	56-61		2	303403	F1	24-64		1	308874	X1	26-		1
209744-9	F3	56-63		2	303403-11	F1	24-64		1	308874-5	X	26-40		1
209745	F3	56-55		130	303403-11	F1	25-44			308875-21	F1	24-20		NP
209745-11	F3	56-56		78	303404	F1	24-28		1	308875-21	F1	25-20		
209746	F3	56-54		24	303404-11	F1	24-28		1	308875-21	F1	26-		
209748-5	F3	56-38		3	303404-11	F1	25-15			308875-21	F1	43-1		
212-12	F3	51-		14	303414	F2	24-54		1	307474	D3	19-15		1
212-12N	F3	54-		6	303414-11	F2	24-54		1	307555	F3	22-9		1
22022CR3125	F3	17A-15		1	303414-11	F2	25-41			307561	F2	14-369		1
24380-03600	F3	19-7		2	303416	F3	24-34		1	307570	A1	1-6		
250382	D3	16-8			303416	F3	25-14			307570	A1	24-167		1
250382	D3	23-10			303417-3	F3	24-30		5	307570	A1	25-		
250839	F3	21-3			303417-3	F3	24-55			307570-11	A1	24-167		1
251216	D2	14-304		1	303417-5	F3	24-51		1	307570-11	A1	25-		
251218	F2	14-305		2	303417-5	F3	25-38			307570-21	A1	24-167		1
251218	F2	14-353			303417-7	F3	24-65		1	307570-21	A1	25-		
251225	D2	14-352		1	303417-7	F3	25-45			307570-31	A1	24-167		1
251251	D3	15-9		3	303417-9	F3	24-25		1	307570-31	A1	25-		
251251	D3	16-9			303417-9	F3	25-17			307570-41	A1	24-167		1
251251	D3	23-11			303428	F1	24-74		1	307570-41	A1	25-		
251252	D3	15-10		3	303428	F1	32-111			307570-51	A1	24-167		1
251252	D3	16-10			303428	F1	42-12			307570-51	A1	25-		
251252	D3	23-12			303428-11	F1	24-74		1	307570-61	A1	24-167		1
251351-131	D3	14-258		1	303428-11	F1	25-54			307570-61	A1	25-		
251351-131	D3	35-37			303428-11	F1	32-111			307578	F3	24-80		1
251351-141	D3	14-258		1	303428-11	F1	42-12			307578	F3	25-61		
251351-141	D3	35-37			303433	F1	24-24		1	307579	F2	24-79		1
251362	D3	17A-		1	303433-11	F1	24-24		1	307579	F2	25-60		
251362	D3	35-32			303433-11	F1	25-16			307579	F2	42-1		
2600	F3	54-		10	303434	F1	24-50		1	307587X		14-48		1
2600LW	F3	54-		7	303434-11	F1	24-50		1	307599-3		24-		1
2650	F3	56-		2	303434-11	F1	25-37			307599-41	F1	24-119		1
27-1B	F3	7-5		2	303437-5	F3	24-42		2	307599-5		24-		1
281001	D3	19-20C		1	303438	F2	24-37		1	307599-7		24-		1
3M435	F3	56-		9	303450-1	F3	24-73		1	307627	D3	19-5		1
302D	F3	7-3	ALT		303450-2	F3	24-68		1	307629	D3	19-33		1
302551	D3	19-27		5	303461	D8	26-26		1	307631	D3	19-36		1
302552	D3	19-45		15	303462	D3	26-25		1	307636	D3	19-26		1
302553	D3	19-19		2	303463	D3	26-5		1	307638-5	D3	19-43		1
302553	D3	19-37			303465	D3	26-24		2	307639	D3	19-42		1
302554	D3	19-34		1	303466	D3	26-32		2	307648	D3	19-31		2
302555	D3	19-35		1	303467	D3	26-31		2	307679	F3	22-55		2
302557	D3	19-41		1	303468	D3	26-30		2	307714	F2	22-37		1
303281	F3	24-10		8	303469	D3	26-21		1	307714-11	F2	22-37		
303282	F3	24-8		15	303470	D2	26-		1	307714-11	F2	46-20		
303286	F3	24-13		1	303470-5	X	26-18A		1	307725-41	D1	22-67		1
303322	F3	18-41		1	303472	D3	26-22		1	307725-41	D1	46-1		
					303473	D3	26-20		1	307725-61	D1	22-67		1
					303474	D3	26-33		4	307725-61	D1	46-1		
					303475	D3	26-8		1	308032	F3	22-71		1
					303533	D3	19-18		1	308390	F2	2-40A		2
					303569	D3	26-7		1	308390	F2	2-41A		
					303608	D3	19-12		1	308390	F2	55-46A		
					303614	D2	19-19A		1	308412	D2	14-		2
					303621	D3	26-29		1	308417	D2	24-70		2
					303622	D3	26-9		1	308541	D2	19-20		1
					303856	F2	14-244		1	308543	D2	19-		1
					303862	F2	18-39		1	308545	D2	19-		1
					303921	D2	19-44		1	308545-5	X	19-50		1
					303926	U	1-5		1	308547	D3	19-14		1
					303926	U	22-			308548	D3	19-16		1
					303927	U	1-6		1	308723	D2	26-		1
					303927	U	24-			308723-3	X	26-23		1
					303927	U	25-			308728	F3	26-10		1
					303936	F3	24-36B		1	308769	D3	13-3		1
					304386	F1	24-20		1	308778	D2	19-32		1
										308783	D2	19-38		1
										308783-3	X	19-40		1

Section III
Numerical Index

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308785	D3	19-28		1	3591-4CNVX375	D3	15-98D			404651-23	F2	22-56		1
308786	D3	19-17		1	3591-4CNVX375	D3	16-80E			404654	F2	22-32		2
308840	F3	14-250		3	3591-4CNVX375	F3	23-53			404654	F2	22-54		2
308840	F3	14-251A		2	3591-4CNV0375	D3	26-36		2	404655-3	F3	8-3		1
308841	F3	14-249		1	3591-4CNX500	F3	28-		6	404656-17	F2	14-185		1
308841-3		14-249B		1	3591-5CNVX625	D3	23-55		6	404656-19	F2	14-238		1
308880	F2	14-60		1	3591-5CNVX625	D3	26-6B			404656-29	F2	14-68		2
308880	F2	34-11			3591-5CNVX625	D3	26-22B			404656-29	F2	14-83		2
308890	F2	24-7		1	3591-7CNVX656	D3	19-20A		4	404656-33	F2	14-82		1
308890	F2	42-7			3591-7CNVX656	D3	15-61			404656-35	F2	14-69		1
309020	F1	43-1			3591-8CNVX656	D3	16-63A		1	404656-43	F2	24-23		1
309022	F3	26-34		1	3591-9CNVX562	D3	8-121C		1	404656-43	F2	25-23		
309029	F2	14-283		1	375690-6	F3	42-2		1	404656-49	F2	24-78		1
309029	F2	41-1			375690-6	F3	42-5		1	404656-49	F2	25-59		
309034	F2	14-336		1	4NBF614YJ	D3	15-80		1	404656-53	F2	24-49		1
309034	F2	41-2			400334	D3	23-58		1	404656-53	F2	25-36		
309040-11	D1	19-		1	401204	F2	26-14		1	404656-55	F2	14-259		4
309040-21	D1	19-		1	401205	F2	3-38		2	404656-57	F2	24-15		1
309040-31	F1	14-51		1	401205	F2	4-41			404656-7	F2	14-76		4
309040-31	F1	18-34		1	401212	F2	4-66		3	404656-7	F2	14-97		
309040-31	F1	19-			401212	F2	25-8			404656-7	F2	14-302		
309040-31	F1	40-13			401220	F2	4-26A		15	404656-7	F2	14-350		
309040-31	F1	48-1			401220	F2	4-39A			404656-87	F2	21-21E		
309050	F2	24-120		1	401220	F2	4-40			404657-15	F2	24-43		1
309147	F3	18-41		1	401220	F2	4-43A			404657-27	F2	29-54		1
309147-3	F3	18-41		1	402853-5	F2	14-159		2	404657-3	F2	4-36		1
309360-51	F2	21-25		1	402959	D3	27-18		1	404657-5	F2	4-68		5
309360-51	F2	34-1			402999	D3	27-14		1	404657-5	F2	14-47		
309360-61	F2	21-25	ALT		403524	X	27-15		1	404657-5	F2	14-290		
309360-71	F2	21-25		1	403920	F2	14-181		1	404657-5	F2	25-8		
309360-71	F2	34-1			404537	D3	15-11		3	404657-5	F2	26-14		
309360-81	F2	21-25	ALT		404537	D3	16-11			404657-7	F2	14-50		1
309415-191	F1	14-258A		1	404537	D3	23-13			404657-9	F2	18-40		1
309415-191	F1	17A-			404543	D3	15-37		4	404658-3	D2	15-90		1
309415-191	F1	28-224			404543	D3	16-43			404658-5	F2	24-142		1
309415-191	F1	35-43		1	404544	D3	15-28		20	404658-9	F2	4-15		3
309415-201	F1	14-258A		1	404544	D3	16-32			404658-9	F2	4-26E		
309415-201	F1	17A-			404560	D3	15-45		4	404659	F3	4-55		49
309415-201	F1	28-224			404560	D3	16-52			404659	F3	8-16		
309415-201	F1	35-43		1	404561	D3	15-43		12	404659	F3	14-87		
309415-211	F1	14-258A		1	404561	D3	16-53			404659	F3	14-187		
309415-211	F1	17A-			404562	D3	15-46		4	404659	F3	14-194		
309415-211	F1	28-224			404562-3	D3	16-54		2	404659	F3	14-240		
309415-211	F1	35-43		1	404562-5	D3	15-46		4	404659	F3	14-253		
309416	D2	17A-		1	404562-5	D3	16-54			404659	F3	14-255		
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3585-04CNVX224	D3	8-30A	NP		404568	D3	16-23			404659	F3	14-279		
3585-04CNVX224	D3	8-49A			404569	D3	15-48		2	404659	F3	14-307		
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3591-3CNVX285	D3	8-121B		86	404577	D3	15-56		2	404659	F3	21-12		
3591-3CNVX285	D3	15-19A			404577	D3	16-59			404659	F2	24-6		
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3591-3CNVX285	D3	16-18C			404580	D3	15-5		6	404659	F3	29-31		
3591-3CNVX285	D3	16-56B			404580	D3	16-5			404659	F3	29-60		
3591-3CNVX285	D3	16-73A			404580	D3	23-7			404659	F3	30-25		
3591-3CNVX285	F3	16-80D			404631	F3	14-376		7	404659	F3	30-34		
3591-3CNVX285	D3	23-18A			404631	F3	15-102			404659	F3	30-37		
3591-3CNVX285	D3	23-40A			404631	F3	25-9			404659	F3	30-40		
3591-3CNVX285	D3	23-54			404631	F3	31-109			404659	F3	31-		
3591-3CNVX285	D3	26-6A			404639	F2	29-86		1	404659	F3	31-41		
3591-3CNVX285	D3	26-22A			404639	F2	54-19			404659	F3	31-52		
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3591-3CNVX380	D3	12-30			404651-23	F2	22-56		1	404659	F3	31-66		
3591-4CNV0375	F3	17A-19		2	404651-25	F2	22-72		1	404659	F3	32-38		
3591-4CNVX375	D3	8-93		71	404651-3	F2	22-21		1	404659	F3	32-55		
3591-4CNVX375	D3	8-121A			404651-5	F2	22-42		1	404664	F3	18-33		3
3591-4CNVX375	D3	11-31			404651-7	F2	22-28		1	404664	F3	20-56		

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404665	F2	4-65												
404666	F2	4-47		4										
404666	F2	4-47A												
404666	F2	14-91												
404666-3	F2	15-106		1										
404666-7	F2	4-40B		21										
404666-7	F2	4-60												
404666-7	F2	14-281												
404666-7	F2	14-286												
404666-7	F2	14-327												
404666-7	F2	14-358												
404666-7	F2	18-44												
404666-7	F2	25-13												
404666-7	F2	25-53												
404666-7	F2	31-123												
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404666-7	F2	32-91												
404666-7	F2	32-99												
404673-13	F2	4-59C		4										
404673-13	F2	29-11												
404673-19	F2	4-73		2										
404673-19	F2	25-4												
404673-23	F2	14-245		1										
404673-23	F2	14-368												
404673-3	F2	4-12A		38										
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404673-3	F2	4-16												
404673-3	F2	4-26												
404673-3	F2	4-26A												
404673-3	F2	4-27												
404673-3	F2	4-39												
404673-3	F2	4-39A												
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404673-3	F2	4-40A												
404673-3	F2	4-43A												
404673-3	F2	4-74												
404673-3	F2	25-7												
404673-3	F2	25-41												
404673-33	F2	29-103		1										
404673-5	F2	14-375		1										
404673-7	F2	4-41		3										
404673-7	F2	14-33												
404673-7	F2	14-378												
404675	F2	24-63		1										
404675	F2	25-31												
404676	F2	14-61												
404677	F2	22-10		2										
404681	F3	14-64		3										
404681	F3	18-48												
404681	F3	20-51												
404681	F3	22-64												
404681	F3	24-97												
404700-3	F2	29-90		2										
404700-3	F2	29-94												
404700-5	F2	14-284		3										
404700-5	F2	14-337												
405006	F3	14-171		1										
405007	F3	14-105		1										
405010	F3	14-152		1										
405012	F3	14-162		1										

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405013	F3	14-346			405849	D3	23-39		1	407167	D3	23-30		2
405016	F3	14-224		1	405850	D3	23-38		1	407169	D3	23-31		1
405018	F3	14-221		1	405854	F3	14-64		32	407401	D2	15-		1
405019	F3	14-230		1	405854	F3	14-79			407401-3	X	15-97C		1
405039	F3	14-107		2	405856	F3	14-63		16	407402	D2	15-		1
405039	F3	14-153			405856	F3	21-78			407402-3	X	15-89B		1
405633-3	F3	14-294		3	405857	F3	14-65		16	407404	D3	15-75A		1
405633-5	F3	14-345		3	405857	F3	21-79			407405	D3	15-		1
405645	F3	14-296		4	405908	D3	23-23		1	407406	D3	15-84		2
405645	F3	14-347			405909	D3	23-59		1	407407	D3	15-83		1
405687	D3	23-61		1	405912	D3	23-15		1	407408	D3	15-93		2
405689	D3	15-51		2	405913	D3	23-20		2	407408	D3	15-96		
405689	D3	16-69			405914	D3	23-		1	407409	D3	15-92		1
405801	D3	15-33		2	405914-3	D3	23-18D		1	407410	D3	15-76		1
405801	D3	16-41			405916	D3	23-17		1	407411	D3	15-95		1
405803	D3	15-		2	405920	D3	23-29		2	407434	D3	15-29		1
405803	D3	16-45			405922	D3	23-26		1	407435	D3	16-33		1
405804	X	15-35A		1	405925	D2	23-		1	407439	D2	23-		1
405805	D3	15-42		4	405925-5	X	23-45		1	407439-3	X	23-41		1
405805	D3	16-47			406078	D3	27-		1	407577	F3	14-151		1
405809	D2	15-41		2	406078-3	X	27-16		1	407579	F1	14-155		1
405809	D2	16-50B			406117	D3	27-17		1	407579-11	F1	14-155		1
405810	D3	15-39		2	406119	D3	27-19		1	407585	F3	14-377		1
405810	D3	16-48			406346	F3	14-44		13	407587	F3	14-104		5
405811	D3	15-40		2	406346	F3	14-101			407588	F3	14-103		5
405811	D3	16-49			406346	F3	14-192			407593	F3	14-32		1
405812	D3	15-		2	406346	F3	14-257			407596	F3	29-106		1
405812	D3	16-46			406346	F3	22-34			407604	F2	14-349		1
405813	X	15-36A		1	406346	F3	22-62			407604	F2	35-7		
405816	D2	15-		2	406346	F3	22-66B			407612	F2	14-161		1
405816	D2	16-			406346	F3	30-3			407614	F2	14-108		1
405816-5	X	15-19C		2	406346	F3	31-62B			407617	F3	14-18		1
405818-5	X	16-19			406346	F3	31-75			407620	F2	14-340		1
405817	F2	15-1		2	406362	F3	21-76			407620	F2	35-22		
405817	F2	16-1			406367	F3	21-73			407624	F3	14-31		1
405817	F2	36-19			406367	F3	21-83			407909	F2	24-122		2
405817	F2	37-38			406367	F3	24-139			407909	F2	24-164		
405818	D3	15-15		2	406368	F3	21-74			408005	D3	23-32		1
405818	D3	16-15			406368	F3	21-84			408008	D3	23-34		3
405819	D3	15-13		2	406368	F3	24-139A			408012	F2	23-3		1
405819	D3	16-13			406369	F3	14-360G			408012	F2	47-6		
405820	D3	15-3		3	406373	F3	14-360F		1	408013	D3	23-62		1
405820	D3	16-3			406374	F3	22-		1	408014	D3	23-52		1
405820	D3	23-4			406651	U	1-3		1	408015	D3	23-66		1
405821	D2	16-		1	406651	U	1-3A			408016	D3	23-65		1
405821-5	X	16-67		1	406651	U	14-			408280-11	F2	14-177		1
405822	D3	15-60		2	406651	U	56-			408280-11	F2	38-8		
405822	D3	16-63			406652-1	F2	14-223		1	408290	F2	14-233		1
405824	D3	16-67		1	406652-11	F2	14-223		1	408290	F2	38-1		
405827	D3	15-64		12	406652-12	F2	14-229		1	409457	D3	15-24		1
405827	D3	16-72			406652-2	F2	14-229		1	408472	X1	15-		1
405827	D3	23-63			408702	D3	15-81		1	408472-5	X	15-98E		1
405828	D3	15-65		3	408707	D3	15-70		4	408473	X1	16-		1
405828	D3	16-73			408708	D3	15-7		1	408473-5	X	16-81		1
405828	D3	23-64			408709	D3	15-72		1	408703	F3	14-25		1
405829	D3	15-63		2	408711	D3	15-74		1	408703-3		14-		1
405829	D3	16-71			408712	D3	15-79		1	408705	F3	14-21		1
405831	D3	15-59		2	408713	D3	15-66		1	408708	F3	14-27		1
405831	D3	16-62			408714-21	D3	15-73		1	408708-11	F3	14-27		1
405832	D3	15-58		2	408715	D3	15-49		1	408710	F2	14-46		1
405832	D3	16-61			408903	F3	14-228		1	408711	F3	14-45		1
405833	D3	15-57		2	408919	F2	14-310		1	408711-3	F3	14-		1
405833	D3	16-60			408919	F2	35-19			408712	F2	14-298		1
405834	D3	16-80		1	407089	D3	15-30		2	408712	F2	35-11		
405835	D3	16-75		1	407089	D3	16-34			408714	F2	14-360		1
405836	D3	16-78		2	407140	D2	15-		2	408714	F2	35-1		
405837	D3	16-79		1	407140	D2	16-			408716	F3	14-26		1
405838	D3	16-77		1	407140-3	X	15-61A		2	408716-3		14-		1
405839	D2	16-		1	407140-3	X	16-64			408718	F3	14-19		1
405839-3	X	16-74		1										

Section III
Numerical Index

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PART NUMBER	REPAIR CODE	FIG & INDEX NO.	ZONE NO.	QTY	PART NUMBER	REPAIR CODE	FIG & INDEX NO.	ZONE NO.	QTY	PART NUMBER	REPAIR CODE	FIG & INDEX NO.	ZONE NO.	QTY
408719	F3	14-22		1	409866-3	X	23-41		1	410861	F2	29-54		1
408720	F3	14-24		1	409867	D3	23-29A		2	410861	F3	21-98		
408723	F3	14-289		1	409868	D3	23-30		2	410863	F2	14-238		1
DELETED					409869	F3	23-69		1	DELETED				
408767	F2	4-55		51	409870	D2	23-		1	410867-3	D2	15-90		1
408767	F2	8-16			409870-5	X	23-45		1	410870	F2	27-9		1
408767	F2	14-87			409871	D3	23-7A		2	410871	F2	14-290		1
408767	F2	14-187			409873	D2	23-		1	410872	F2	14-47		2
408767	F2	14-194			409873-3	X	23-19		1	410874	F2	14-33		1
408767	F2	14-240			409899	F2	14-233		1	DELETED				
408767	F2	14-253			409899	F2	38-1			DELETED				
408767	F2	14-255			409900-11	F2	14-177		1	DELETED				
408767	F2	14-255D			409900-11	F2	38-8			DELETED				
408767	F2	14-279			409911	D3	23-60		1	DELETED				
408767	F2	14-307			409912	D2	23-		1	DELETED				
408767	F2	14-335			409912-3	X	23-50		1	DELETED				
408767	F2	14-344			409913	D2	23-		1	410876	F2	4-12A		11
408767	F2	14-386			409913-3	X	23-56		1	410876	F2	4-12B		
DELETED					409914	D3	23-48		4	410876	F2	4-16		
408767	F2	17A-4			409920	F1	14-77		1	410876	F2	4-26		
408767	F2	21-13			409920	F1	16-			410876	F2	4-39		
408767	F2	24-6			409920	F1	36-1			410876	F2	4-40A		
408767	F2	25-43			409930	F1	22-15		1	410876	F2	4-74		
408767	F2	29-31			409930	F1	23-			410876	F2	25-7		
408767	F2	29-60			409930	F1	47-1			410879	F2	21-18		1
408767	F2	30-25			409940	F1	22-15		1	410886	F2	14-245		1
408767	F2	30-34			409940	F1	23-			410886	F2	14-368		
408767	F2	30-37			409940	F1	47-1			410890	F2	25-59		1
408767	F2	30-40			409973	F1	14-62		NP	DELETED				
408767	F2	31-			410043	D2	15-		1	DELETED				
408767	F2	31-66			410043-3	X	15-119		1	410893-3	F2	4-15		2
408767	F2	31-75			410044	F3	15-117		1	410893-3	F2	4-26B		
408767	F2	32-38			410050	F2	15-		NP	DELETED				
408767	F2	32-55			410050-11	F2	15-101		1	410896	F2	4-73		1
408767-5	F2	2-80		2	410050-11	F2	37-9			410896	F2	25-4		1
408767-5	F2	21-42B			410105	F3	14-23		2	DELETED				
408776	F2	3-46		1	410109	F3	14-20		1	410899	F2	4-50		1
408776	F2	4-50			410110	F3	14-29		1	411031	F1	14-62		1
408795	F2	32-93		2	410116	F3	4-7		1	411031	F1	15-		
408799	F3	14-44		23	410119		14-		NP	411031	F1	37-1		
408799	F3	14-101			410121	F3	14-28		1	411031-11	F1	14-62A		1
408799	F3	14-192			410122	F3	14-30		1	411031-11	F1	15-		
408799	F3	14-257			410124		14-		NP	411031-11	F1	37-1		
408799	F3	22-34			410366	F3	14-29		1	411032	F3	15-117		1
408799	F3	22-66B			410372	A	14-382		1	411033	F1	15-101		1
408799	F3	30-3			410372-11	A	14-382		1	411038	F3	15-109		1
408799	F3	30-9			410373	A	14-381		1	411043	F3	15-		1
408799	F3	31-62B			410373-21	A	14-381		1	411043-3	F3	15-119		1
408799	F3	32-47			410374	A	14-379		1	411112	F2	15-109		1
408799	F3	32-47D			410374-11	A	14-379		1	411112-11	F2	15-109		1
409118	F3	23-4A		1	410374-21	A	14-379		1	411502		14-398		1
409153	D3	15-77		1	410374-31	A	14-379		1	411502		35-58		
409155	F3	14-74A		1	410374-41	A	14-379		1	411526	F3	14-365		1
409184	F2	14-362		1	410374-51	A	14-379		1	411527	F3	14-364		1
409184	F2	55-44			410374-61	A	14-379		1	411529	M	29-111		1
409313	F3	14-182B		48	410374-71	A	14-379		1	411529-3		29-		1
409313	F3	14-235B			410375	A	14-380		1	411533	F3	24-130		AR
409320-11	F2	14-177		1	410375-101	A	14-380		1	411537	F3	24-134		1
409320-11	F2	38-8			410375-11	A	14-380		1	411538	F3	24-152		1
409756	F2	22-56		1	410375-111	A	14-380		1	411543	F3	24-137		1
409811	M	29-112		1	410375-121	A	14-380		1	411544	F3	24-141		1
409811-3		29-		1	410375-21	A	14-380		1	411608	F3	24-127		2
409812	M	29-113		1	410375-31	A	14-380		1	411609	F3	24-163		1
409812-3		29-		1	410375-41	A	14-380		1	411612	F3	24-129		2
409813	M	14-360B		1	410375-51	A	14-380		1	411615	F3	24-160		1
409820	F3	21-81			410375-61	A	14-380		1	411616	F3	24-		1
409823	F3	14-361		1	410375-71	A	14-380		1	411617-3	F3	24-156		AR
409860	D3	23-33		2	410375-81	A	14-380		1	411617-5	F3	24-157		AR
409861	D3	23-32		1	410375-91	A	14-380		1	456147	D2	18-9		1
409862	D3	23-59		1	410428	F3	15-105		1	456153	D3	18-11		115
409863	D3	23-23		1	410428	F3	15-115		1	456154	D2	18-13		1
409864	D3	23-58		1	410434	F3	15-109		1					
409865	D3	23-38		1	410437-XXX	F3	15-116		1					
409866	D2	23-		1	410438	F3	15-114		1					
					410439	F3	15-108		4					
					410445	F3	15-112		1					
					410853-3	F2	18-40		1					
					410854	F2	14-50		1					

PART NUMBER	REPAIR CODE	FIG. & INDEX NO.	ZONE NO.	QTY	PART NUMBER	REPAIR CODE	FIG. & INDEX NO.	ZONE NO.	QTY	PART NUMBER	REPAIR CODE	FIG. & INDEX NO.	ZONE NO.	QTY
457427	F3	18-16		10	459721	F2	32-91		1	460390-191	D1*	14-195		1
457428	F3	18-7		24	459721	F2	32-97		1	460390-191	D1*	18-		1
457445	F3	18-19		1	459721	F2	32-99			460390-191	D1*	40-1		
457448	F3	18-20		1	459723	F2	22-32		3	460390-201	D1*	14-195		1
458154	D2*	20-4		1	459723	F2	22-54			460390-201	D1*	18-		1
458156	F3	20-3		1	DELETED					460390-201	D1*	40-1		
458157-3	F3	20-2		5	DELETED					500525	F2	21-103		1
458157-5	F3	20-6		8	DELETED					500750	F2	2-78		1
458157-7	F3	20-7		2	459724	F2	4-40B		15	500750	F2	21-42A		
458159	F3	20-12		1	459724	F2	4-40C			501459	F3	24-121		1
458160	F3	20-11		1	459724	F2	4-47			DELETED				
458168-3	F3	1-8		1	459724	F2	4-47A			DELETED				
458175-111	D1*	14-262		1	459724	F2	4-60			501727-111	D3	2-28		1
458175-111	D1*	20-			459724	F2	14-286			501727-111	D3	57-		
458175-111	D1*	39-1			459724	F2	14-327			501727-131	D3	2-28		3
458175-151	D1*	14-262		1	459724	F2	14-358			501727-131	D3	21-96		
458175-151	D1*	20-			459724	F2	25-13			501727-131	D3	28-56		
458175-151	D1*	39-1			459724	F2	25-53		2	501727-131	D3	57-		
458175-161	D1*	14-262		1	459724-3	F2	32-93		1	501727-171	D3	28-28		
458175-161	D1*	39-1			459753	F2	25-31		1	501727-171	D3	28-29		
458175-161	D1*	14-262			459756	F2	22-56		1	501727-171	D3	28-32		
458175-161	D1*	20-			459758	F2	8-3A		1	501727-171	D3	32-		6
458175-161	D1*	39-1			459760-3	F2	29-80		2	501727-171	D3	57-		
458175-81	D1*	14-262		1	459760-3	F2	29-84		4	501727-201	D3	28-41		1
458175-81	D1*	20-			459760-5	F2	14-259		4	501727-201	D3	28-19		3
458175-81	D1*	39-1			459760-5	F2	14-404			501727-211	D3	28-40		
458175-221	D1*	14-262		1	DELETED					501727-211	D3	28-67		
458175-221	D1*	20-			459761	F2	14-284		3	501727-211	D3	28-37		2
458175-231	D1*	14-262		1	459761	F2	14-337			501727-211	D3	28-37		
458175-231	D1*	20-			DELETED					501727-341	D3	28-65		
458175-241	D1*	14-262		1	459761-3	F2	4-36		1	501727-341	D3	57-		
458175-241	D1*	20-			459762	F2	14-82		1	501727-361	D3	28-68		1
458175-251	D1*	14-262		1	459762-3	F2	14-69		1	501727-41	D3	2-29		6
458175-251	D1*	20-			459763-5	F2	14-244		1	501727-41	D3	28-52		
458175-301	D1*	14-262		1	459764-3	F2	21-21B		2	501727-41	D3	28-58		
458175-301	D1*	20-	REF		459764-5	F2	14-88		1	501727-41	D3	28-79		
458421	F3	20-22		1	459764-7	F2	14-185		2	501727-41	D3	57-		
458422	F3	20-21		1	459765	F2	14-281			501727-421	D3	28-74		1
458425	D2*	20-		1	459765	F2	21-49			501727-481	D3	2-19		3
458654	D3*	20-		1	459767	F3	21-52		1	501727-481	D3	28-44		
459504	D1*	20-		1	459767	F3	24-149			501727-481	D3	28-46		
459504-5	X	29-9B		1	459770	F2	24-41		1	501727-481	D3	57-		
459510	D3*	20-31		1	459773-3	F2	25-23		1	501727-481	D3	28-43		3
459709	F3	2-42		4	459773-5	F2	24-15		1	501727-491	D3	28-47		
459709	F3	2-43			459863	D2*	20-39		113	501727-491	D3	28-73		
459709	F3	2-43A			459870	D2*	20-39		1	501727-491	D3	28-20		1
459709	F3	14-40			459871	D3	20-37		1	501727-501	D3	28-26		5
459719	F2	14-97		5	459875	D2*	20-32		1	501727-51	D3	28-34		
459719	F2	14-302			460141	F3	18-18		AR	501727-51	D3	28-35		
459719	F2	14-350			460157	F3	18-24		1	501727-51	D3	32-		3
459719	F2	14-302			460160-51	D1*	14-195		1	501727-51	D3	57-		
459719-5	F2	14-78		1	460160-51	D1*	40-1			501727-511	D3	2-82		1
459720-3	F2	24-14		1	460160-61	D1*	14-195		1	501727-511	D3	28-18		
459721	F2	18-48		14	460160-71	D1*	18-			501727-541	D3	28-59		1
459721	F2	20-51			460160-71	D1*	40-1			501727-561	D3	2-84		4
459721	F2	22-64			460164	D3*	18-1B		6	501727-561	D3	28-23		
459721	F2	31-23		1	460165	F3	18-20		1	501727-561	D3	28-27		
459721		32-84			460166	F3	18-2A		3	501727-561	D3	28-71		
					460167	F3	18-4		6	501727-561	D3	32-		
					460168	F3	18-19A		3	501727-561	D3	57-		
					460170	F3	18-1		6	501727-571	D3	28-22		2
					460352	F3	18-30		AR	501727-571	D3	28-70		
					460353	D3*	18-25		1	501727-581	D3	28-82		1
					460358	F2	18-12		1	501727-91	D3	2-20		7
					460371	D2*	18-14		1	501727-91	D3	2-21		
					460372	D2*	18-5		1	501727-91	D3	2-22		
					460373-21	D2*	18-14		1	501727-91	D3	2-24		
					460374	D2*	18-5		1	501727-91	D3	2-25		
					460374-11	D2*	18-5		1	501727-91	D3	28-63		
					460383	D3*	18-11		115	501727-91	D3	28-64		
					460390-151	D1*	14-195		1	501727-91	D3	57-		
					460390-151	D1*	18-		1	501740-211	D3	28-25		1
					460390-151	D1*	40-1							
					460390-181	D1*	14-195		1					
					460390-181	D1*	18-		1					
					460390-181	D1*	40-							

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PART NUMBER	REPAIR CODE	FIG & INDEX NO	ZONE NO.	QTY	PART NUMBER	REPAIR CODE	FIG. & INDEX NO	ZONE NO	QTY	PART NUMBER	REPAIR CODE	FIG & INDEX NO	ZONE NO	QTY
501740-211	D3	57-			502833-13	F3	29-			502951	F2	2-18		1
501740-41	D3	28-80	2		502833-13	F3	32-			502951	F2	21-95		1
501740-41	D3	28-81			502833-15	F3	29-89C		3	502951-11	F2	2-18		1
502265	F2	28-83	1		502833-15	F3	12-20			502951-11	F2	21-95		2
502272-111	D3	2-23	3		502833-15	F3	29-89C		1	502957	F3	2-32		2
502272-111	D3	2-31			502833-17	F3	15-17B		2	502957	F3	28-86		
502272-111	D3	57-			502833-17	F3	29-89B		1	502957	F3	57-		
502272-131	D3	28-49	5		DELETED					503109	F3	56-40		2
502272-131	D3	28-51			502833-19	F3	4-4		4	503110	F3	56-47		1
502272-131	D3	28-76			502833-23	F3	14-14		21	503111	F3	56-45		1
502272-131	D3	28-77			502833-23	F3	14-260			503112	F3	56-46		1
502272-131	D3	28-78			502833-25	F3	14-292		1	503113	F3	56-43		1
502272-131	D3	57-			502833-25	F3	32-			503114	F3	56-44		1
502272-171	D3	28-30	6		502833-27	D3	19-22		1	503115	F3	56-39		1
502272-171	D3	28-31			502833-29	D3	14-15		2	503116-1	F3	56-41		1
502272-171	D3	28-33			502833-29	D3	21-77			503116-2	F3	56-42		1
502272-171	D3	32-			DELETED					503118-1	F3	56-48		1
502272-171	D3	57-			502833-3	F3	4-1		7	503118-2	F3	56-49		1
502272-41	D3	18-42A			502833-3	F3	24-48			503125	F3	4-7A		1
502272-41	D3	28-50			502833-3	F3	25-35			503157	F3	21-95		
502272-41	D3	28-53			502833-5	F3	22-19		2	503157	F2	28-1		
502272-41	D3	28-54			502833-5	F3	24-140			503158	F2	2-83		
502272-41	D3	28-55			502833-7	F3	14-173		1	503158	F2	28-21		1
502272-41	D3	28-57			DELETED					503159	F2	28-14		1
502272-41	D3	28-78A			DELETED					503159	F2	28-202		
502272-41	D3	2-30	1		502833-9	F3	4-2		5	503160	F2	2-81		1
502272-91	D3	28-81	2		502833-9	F3	4-2A			503160	F2	28-17		
502272-91	D3	28-82			502833-9	F3	21-100			503162	D3	2-84		1
502290	F1	28-198	1		502833-9	F3	21-101			503162	D3	28-23		
502290-11	F1	28-198	1		502833-9	F3	25-2			503162-11	D3	57-		
502294	F3	28-186	3		502834	F3	14-303		1	503162-11	D3	28-2		
502295	F3	28-199	10		DELETED					503164	D3	28-13A		1
502295	F3	31-89			502835	F3	4-10		5	503164-11	D3	28-13B		1
502459	F1	2-49	1		502835	F3	14-282			503165	F1	2-81		1
502459-11	F1	2-49	1		502835	F3	14-329			503165	F1	28-17		
502459-3	X	2-	1		502835	F3	25-6			503165-11	F1	2-81		1
502463	F3	28-192	2		502835	F3	32-			503165-11	F1	28-17		
502464	F1	28-193	1		502836	F3	2-33		2	503166	F1	2-83		1
502464-21	F1	28-193	1		502836	F3	28-87			503166	F1	28-21		
502465	F1	28-194	1		502838	F3	19-10B		1	503166-11	F1	2-83		1
502465-21	F1	28-194	1		502839	F3	19-23		1	503166-11	F1	28-21		
502466	F3	28-195	1		502840	F3	14-351		1	503169	F3	28-88		
502467-21	X	28-184	1		502843	F3	14-158		1	503172-111	D3	28-10		
502468	F3	14-160	1		502844	F3	22-26		7	503172-111	D3	57-		
502470	F1	28-197	1		502845	F3	24-77		1	503172-131	D3	21-96		
502470-11	F1	28-197	1		502845	F3	25-57			503172-131	D3	28-9		
502471	F1	28-196	1		502846	F3	22-77		2	503172-131	D3	28-56		
502471-11	F1	28-196	1		502847	F3	22-20		1	503172-131	D3	57-		
502670-181	F1	2-55	1		502848	F3	32-91A		1	503172-171	D3	28-28		4
502670-181	F1	49-1			502849	F3	32-8		1	503172-171	D3	28-29		
502670-251	F1	49-1			DELETED					503172-171	D3	28-32		
502670-251		2-	NP		502850	F3	4-8		1	503172-171	D3	57-		
502670-261		2-	NP		502853-3	F3	14-71		1	503172-201	D3	28-41		1
502670-261	F1	49-1			502853-7	F3	14-159		2	503172-201	D3	57-		
502670-381	F1	2-55	1		DELETED					503172-211	D3	28-19		5
502670-581	F1	2-55	1		502854	F3	4-9		1	503172-211	D3	28-40		
502827	F3	14-281	1		502856	F3	28-148H		66	503172-211	D3	28-67		
502827		14-400			502865	F1	28-156		2	503172-211	D3	57-		
502828	F3	14-70	1		502865-3		28-180		2	503172-301	D3	28-15		1
502829	F3	24-44	1		502865-5		28-161		2	503172-301	D3	57-		
502830	F3	31-46	2		502865-7		28-162		2	503172-341	D3	28-39		
502831	F3	29-92A	1		502866		28-148J		6	503172-341	D3	28-65		
502832	F3	28-141	3		502867	F1	28-155		1	503172-341	D3	57-		
502833-11	F3	24-12	1		502868	F3	28-		4	503172-361	D3	28-68		1
502833-13	F3	4-3	9		502869	F1	28-149		1	503172-361	D3	57-		
502833-13	F3	4-3A			502870	F1	28-152		1	503172-41	D3	28-11		
502833-13	F3	14-328			502937-631	D3	28-60		5	503172-41	D3	28-52		
502833-13	F3	21-57			502937-631	D3	28-53			503172-41	D3	28-58		
502833-13	F3	22-78			502937-631	D3	28-54			503172-41	D3	28-79		
502833-13	F3	24-101			502937-631	D3	57-			503172-41	D3	57-		
502833-13	F3	28-140								503172-421	D3	28-74		1

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503172-421	D3	57-			550154	D2	8-		1	554871	D3	8-38		NP
503172-481	D3	28-44	3		550154-3	X	8-108		1	554890	D3	8-66		1
503172-481	D3	28-46			550176	D3	8-121		1	554891	D3	8-81A		4
503172-481	D3	57-			550238	D3	8-106B		1	554892	D3	8-81		2
503172-491	D3	28-43	5		550338	D3	9-21		2	554893	D3	8-83		1
503172-491	D3	28-47			550339	D3	9-17		2	554894	D3	8-85		1
503172-491	D3	28-73			551252	X	10-7		1	554895	D3	8-77		1
503172-491	D3	57-			551254	D3	10-4		1	554896	D3	8-90		1
503172-501	D3	28-20	1		551255	F2	8-1		1	554897-3	D3	8-72		1
503172-501	D3	57-			551255	F2	10-			554898	D3	8-69		1
503172-51	D3	28-26	4		551255	F2	50-9			554899	D3	8-57		2
503172-51	D3	28-34			551317	F3	8-5		1	554926	D3	8-59		2
503172-51	D3	28-35			551324	D3	8-88		1	554928	D3	8-64		1
503172-51	D3	57-			551357	D3	8-91		1	554929	D2	8-61		1
503172-511	D3	2-82			551655	D3	8-89		1	554931	D3	8-117		1
503172-511	D3	28-18	1		551853	F3	8-6		1	554932	D3	8-115		1
503172-511	D3	57-			551994	D3	8-103		1	554934	D3	8-112		1
503172-541	D3	28-59	1		553087	X	13-1		1	554935	D3	8-111		1
503172-541	D3	57-			553137	D3	8-92		1	554936	D3	8-110		1
503172-561	D3	28-27	2		553364	F3	3-25		11	554938	D3	8-102		1
503172-561	D3	28-71			553364	F3	4-23			554940	D3	8-104		1
503172-561	D3	57-			553364	F3	8-9			554941	D3	8-105		1
503172-571	D3	28-22	3		553364	F3	11-1			554942	D3	8-106		1
503172-571	D3	28-70			553364	F3	15-31			554943	D3	8-		1
503172-571	D3	57-			553364	F3	16-39			554943-3	X	8-101		1
503172-581	D3	28-82	1		553364	F3	23-67			554945	D3	8-86		1
503172-581	D3	57-			553364-21	F3	17A-5		1	554947	D3	8-81B		1
503172-91	D3	28-3			DELETED					554949	D3	8-74		1
503172-91	D3	28-4			553372	F3	4-62		1	554950	D3	8-70		1
503172-91	D3	57-			553372-11	F3	4-62		7	554951	D3	8-		1
503172-91	D3	28-5			553372-11	F3	8-24			554951-3	X	8-62B		1
503172-91	D3	28-7			553372-11	F3	12-2			554952	D3	8-67		1
503172-91	D3	28-8			553372-11	F3	17A-7		1	554953	D3	8-65		1
503172-91	D3	28-63			553372-11	F3	19-1			554960	D3	10-2		1
503172-91	D3	28-64			553372-11	F3	26-1			554964	D3	10-5		1
503173-111	D3	28-8			553373-11	F3	14-88		1	554965	D3	10-6		3
503173-111	D3	28-13			553780	F3	27-20		1	555013	D3	8-49		NP
503173-111	D3	57-			553842	D3	8-56		3	555015	D3	8-51		NP
503173-131	D3	28-9	11		553842	D3	13-4			555016	D3	8-42		NP
503173-131	D3	28-49			553842	F3	27-22			555017	D3	8-52		NP
503173-131	D3	28-51			553843	F3	27-21		1	555745	D3	24-61		1
503173-131	D3	28-76			553930	D2	8-		1	555745	D3	25-29		
503173-131	D3	28-77			553930-3	X	8-94		1	555788	D2	9-		1
503173-131	D3	28-78			553932	D2	8-28		NP	555788-3	D3	9-26		1
503173-131	D3	57-			553935	D3	8-95		1	555778	D3	11-9		2
503173-171	D3	28-30	4		553935	F3	50-13			555778	D3	12-10		
503173-171	D3	28-31			553948	F3	12-23		1	555779	D3	11-8		5
503173-171	D3	28-33			554018	D3	8-55		1	555779	D3	12-9		
503173-171	D3	28-214			554019	D3	8-53		1	555781	D3	11-20		2
503173-171	D3	35-53			554041	D2	13-7		1	555781	D3	12-15		
503173-171	D3	57-			554042	D3	13-5		1	555782	D3	12-13		1
503173-311	D3	28-16	1		554043	D3	13-6		1	555785	D3	12-25		1
503173-311	D3	28-203			554078	F2	13-		1	555786	D3	12-4		1
503173-311	D3	35-47			554079	D3	13-2		1	555787	D3	12-12		1
503173-311	D3	57-			554606	D3	8-116		1	555790	D3	12-26		1
503173-41	D3	28-12			DELETED					555793	D3	11-29		1
503173-41	D3	28-55			554780	M1	4-69		1	555797	D3	6-100		1
503173-41	D3	28-57			554793-13	F3	4-49		1	555805	D3	9-11		1
503173-41	D3	28-84			DELETED					555806	D3	9-13		2
503173-71	D3	28-85	1		554793-3	F3	4-42		1	555807	D3	9-2		1
503173-91	D3	28-61	3		554793-5	F3	55-27		1	555808	D3	9-24		1
503173-91	D3	28-62			DELETED					555809	D3	9-5		1
503173-91	D3	57-			DELETED					555810	D3	9-18		2
503174-211	D3	28-25	1		554798	F3	4-34		1	555811	D3	9-14		1
503174-211	D3	57-			554805	D3	9-23		2	555812	D3	9-15		1
503174-41	D3	28-80	3		554807	D3	9-22		1	555815	D3	9-9		1
503174-41	D3	57-			554812	D3	9-19		2	555879	F3	3-42		2
503266	F2	28-205	1		554851	D3	8-35		NP	555979	F3	4-46		
51238	F3	2-37F	1		554858	D3	8-47		NP	555986	F3	3-14		1
51238	F3	21-27D	1		554863	D3	8-34		NP	DELETED				
514	F3	33-	12		554865	D3	8-40		NP	DELETED				
514	F3	46-			554867	D3	8-41		NP					
550062	D3	8-114	1		554868	D3	8-44		NP					

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556101	U	1-1		1	557411-7	F3	4-80		1	557917-11	X1	4-25		1
556101	U	1-2			557417	M1	4-48		1	557918	F1	4-13		1
556101	U	2-			557419	F3	14-92		1	557918	F1	55-17		
556101	U	4-			557429	F3	14-93		4	557918-11	F1	4-13		1
556120	F3	29-86A		15	557430	F3	14-36		1	557918-11	F1	13-		
556120	F3	31-87			557437	F3	4-59		1	557918-11	F1	55-17		
556120	F3	31-76			557437	F3	55-33			557918-31	F1	4-13		1
556120	F3	31-85			557437-11	F3	4-59		1	557918-31	F1	13-		
556120	F3	31-113			557437-11	F3	55-33			557919	M1	4-48		1
556120	F3	32-			557438	F1	4-71		1	557920	F3	4-51		2
556141-11	M1	4-61		1	557438	F1	25-5			557948	X1	27-		1
556146	M1	4-20		1	557438	F1	55-36			557948-3	X	27-25		1
556146	M1	55-22			557439	F3	4-72		1	557980	F2	14-243		1
556426	F3	3-67A		1	557439	F3	25-3			557980	F2	35-26		
556426	F3	4-71A		1	557445	F3	4-18D		1	557998-41	F1	24-45		
556426	F3	5-			557751	F3	4-		4	557998-41	F1	25-32		1
556431	D3	6-1		1	557751	F3	29-			557998-41	F1	27-		
556432	D3	5-2		1	557751-11	F3	4-		2	557998-41	F1	32-112		
556433	D3	5-1		1	557751-11	F3	29-26A			557998-41	F1	44-1		
556441	X	5-5		1	557755	F3	29-21A		4	558019	X	6-4		1
556443	D3	5-4		2	557755-11	F3	13-8		5	558020	F2	4-25A		1
556443	D3	6-2			557755-11	F3	29-21A			558020	F2	6-		
556444	D3	5-3		3	557807	D3	11-		1	558037	F3	4-75		1
556444	D3	6-3			557807-3	D3	11-4		1	558037-7	X	4-		1
556444	F3	15-113			DELETED					558041	M3	4-19		1
556446	F2	14-243			557809-31	F1	8-22		1	558041-11	M3	4-19A		1
556446	F2	35-26			557810	D3	12-16		1	558065	D3	9-		1
556450	F3	29-		1	557812	D3	12-14		1	558065-3	D2	9-10		1
556450	F3	55-26			557813	D3	12-		1	558065-5	D3	9-8		1
556480	F3	25-56A		2	557813-3	D3	12-33		1	558065-7	D3	9-6		1
556480	F3	24-76A			557816	D3	12-29		1	558065-9	D3	9-7		1
556480-11	F3	13-9		1	557817-11	D3	12-		1	558069	F2	4-64		3
556501	D3	8-72		2	557817-11	F1	14-90			558069	F2	8-11		
556589	D3	8-78		1	557848	F2	24-58		1	558069	F2	8-11A		
556590	D3	8-82		1	557848	F2	45-1			558069	F2	9-		
556591	D3	8-84		1	557848-11	F2	24-58		1	558069	F2	50-16		
556934	D3	12-23		1	557848-11	F2	45-1			558069	F2	51-1		
556951	D3	8-30		NP	557848-21	F2	24-58		1	558082	D3	11-		2
556953	D3	8-27		NP	557848-21	F2	45-1			558082	D3	12-		
556955	D3	8-45		NP	557876	F1	4-30		1	558082-3	D3	11-33		2
556956	D3	8-43		NP	557876-11	F1	4-30		1	558082-3	D3	12-33		
556957	D3	8-		NP	557876-13	F3	14-390		1	558095	D3	8-48		NP
556957-3	D3	8-31		NP	557876-15	F3	14-389		1	558096	D3	8-36		NP
556958	D3	8-		NP	557876-15	F3	35-56			558097	D3	8-46		NP
556958-3	D3	8-50		NP	557876-21	F1	4-30		1	558098	D3	8-52		NP
556962	D3	11-28		4	557876-31	F1	4-30			558099	D2	8-		1
556962	D3	12-27			557876-31	F1	14-			558099-3	X	8-122		1
556963	D3	8-29		NP	557876-9	F3	14-391		1	558101	F3	14-39		1
556970	D2	52-5			557877	F3	4-6		2	558101	F3	55-40		
556971	D3	12-		1	557880-31	X1	4-21		1	558102-3	F3	4-37		1
556971-3	D3	12-6		1	557881	F1	4-22		1	558103-11	F2	14-243		1
556973	D3	12-24		1	557885	F1	4-5		2	558103-11	F2	35-26		
557181	F3	29-		1	557889-11	F1	4-25		1	558107	X1	4-25		1
557190	D3	11-18		1	557890	F3	4-15		1			55-10		
557191	D3	11-19		1	557890-3	F3	4-		1					
557192	D3	11-17		1	557892	F3	4-32		1					
557203	D3	11-10		1	557902	M1	4-20		1					
557204	D3	11-16		1	557902	M1	55-22							
557206	D3	11-7		1	557904	M1	4-22		1					
557208	D3	11-25		1	557904	M1	55-5							
557209	D3	11-23		1	557915	X1	4-21		1					
557211	D3	11-26		1	557915	X1	55-1							
557212	D3	11-21		1	557915-21	X1	4-21		1					
557213	D3	11-24		1	557915-21	X1	55-1							
557214	D3	8-132		2	557917	X1	4-25		1					
557411-3	F3	4-76		1	557917-11	X1	55-10							

PART NUMBER	REPAIR CODE	FIG. & INDEX NO	ZONE NO	QTY	PART NUMBER	REPAIR CODE	FIG. & INDEX NO	ZONE NO	QTY	PART NUMBER	REPAIR CODE	FIG. & INDEX NO	ZONE NO	QTY
558107-11	X1	4-25		1	660904-1	F3	55-4A			703095		14-384		1
558107-11	X1	55-10			660904-1	F3	55-9A			703095	M1	31-53		1
558109	F1	4-12	1		660904-1	F3	55-23A			703095-3	M	31-		1
558109	F1	55-7			660904-10	F3	44-7		1	703096	F3	14-388		15
558109-21	F1	4-12	1		660904-3	F3	42-15		6	703096	F3	29-86A		
558109-21	F1	55-7			660904-3	F3	42-20			703096	F3	31-		
558112	F1	4-22	1		660904-3	F3	44-5			703096	F3	31-67		
558112	F1	55-5			660904-3	F3	44-10			703096	F3	31-85		
558116	F3	4-73A	1		660904-3	F3	45-4			703096	F3	31-113		
558116-3		4-	1		660904-3	F3	54-27			703096	F3	32-		
558121	F3	2-36	1		660904-4	F3	45-3		3	703250	F1	28-36		1
558121	F3	21-89			660904-4	F3	55-27A			703250	F1	32-110		
558122-3	F3	4-80	1		660904-6	F3	42-6		1	703250-11	F1	28-36		1
558122-5	F3	4-76A	1		660904-7	F3	55-21		1	703250-11	F1	32-110		
558126	F1	4-56	1		660904-9	F3	35-36		1	703374	M1	31-79		1
558126-21	D3	11-			DELETED					703374-3	M	31-		1
558126-21	D3	4-56	1		DELETED					703556	M1	30-1		1
558126-11	D3	11-			701852	F3	22-35		1	703557	M1	31-83		1
558127-11	D3	12-	1		701853	F3	8-15		8	703557-3	M	31-		1
558127-11	F1	14-90			701853	F3	14-52			703559	M1	31-82		1
558127-11	F1	52-3			DELETED					703559-11	M1	31-82		1
558129	D3	12-16	1		701853	F3	17A-3		2	703559-3	X	31-		1
558130-511	F1	4-31	1		701853	F3	29-59			703559-5	X	31-		1
558130-511	F1	8-			701855	F3	30-36		1	703561	F3	24-77A		2
558130-511	F1	50-1			702497	F3	14-43		1	703561	F2	31-73		
558130-531	F1	4-31	1		702500	U	1-		1	DELETED				
558130-531	F1	8-			702500	U	30-		1	DELETED				
558272-3	F3	7-3	1		702527	U	1-		1	703563	M1	31-64		1
558272-31	F1	2-56A	1		702527	U	31-			703563-3	M	31-		1
558272-31	F1	2-60	4		702527	U	32-			DELETED				
558272-31	F1	7-			702528	F3	14-186		14	703564	F3	4-45		8
558272-31	F1	21-90			702528	F3	14-252			703564	F3	31-71		
558272-31	F1	31-28			702528	F3	14-343			703566	F3	31-72		1
558272-31	F1	32-24			702528	F3	14-385			703570	F3	14-		2
558272-41	F1	2-60	4		702528	F3	22-61			703570	F3	31-110		
558272-41	F1	2-56A	1		702528	F3	25-42			703655	F1	30-38		1
558272-41	F1	21-90			702528	F3	31-51			703655-11	F1	30-38		1
558272-41	F1	31-28	1		702528	F3	31-59			703656	F1	30-32		1
558272-41	F1	32-24	1		702528	F3	31-65			703658	F1	30-35		1
558301-21	F2	27-13	1		702528	F3	31-74A			703659	F1	30-6		1
558301-21	F2	42-17			702528	F3	32-37			703660	F1	30-4		1
558301-21	F2	44-8			702528	F3	32-54			703660-11	F1	30-4		1
558325	F2	8-1A	1		702532	F1	32-59		1	703661	F1	30-5		1
558325	F2	50-9			702532-21	F1	32-59		1	703661-11	F1	30-5		1
558424	D3	8-54	1		702533	F1	31-87		1	703662	F1	30-10		1
558441	D3	8-71	2		702533-21	F1	31-87		1	703663	F1	30-26		1
558476	M	4-19B	1		702534	F3	31-47		2	703664	F1	30-42		1
558486-3	F3	21-107	1		702538	F3	32-87		2	703665	F1	30-22		1
558488	F3	2-72	1		702538	F3	32-89			703666	F1	30-41		1
558488	F3	21-35			702547	F3	14-193		8	703667	F1	30-43		1
558489	F3	2-77	1		702547	F3	14-254			703669	F1	30-11		1
558489	F3	21-40			702547	F3	14-256			703670	F1	30-23		1
558494	F3	14-401	1		702547	F3	14-306			703672	F1	30-44		1
558494	F3	28-220	1		702547	F3	30-2			703673	F1	14-378C		1
558495	F3	14-402	1		702547	F3	30-24			703673	F1	30-7		
558495	F3	28-221	1		702547	F3	30-33			703677	D3	31-8A		21
5612-41	F3	31-	4		702547	F3	30-39			703677	D3	31-9A		
58FT820	F3	14-227	1		702547	F3	31-74			703677	D3	31-10A		
61595	F3	2-37G	1		702547	F3	32-46			703677	D3	31-11A		
61595	F3	21-27E	1		702605	X2	32-4		1	703677	D3	31-12A		
651204	U	1-	1		702605	X2	53-11			703677	D3	31-13A		
651389	F1	2-37	2		702614	X2	31-4		1	703677	D3	31-14A		
651389	F1	34-15			702614	X2	53-3			703677	D3	31-15A		
651390	D1	21-27B	1		702626	F2	32-80		1	703677	D3	31-16A		
651394	F3	2-83	4		702626-11	F2	32-80		1	703677	D3	31-17A		
651394	F3	21-94			702642	F3	31-		2	703677	D3	31-18A		
651395	F3	2-	4		702642	F3	32-			703677	D3	31-19A		
652038	F2	14-380D	1		703087	F3	31-45		8	703677	D3	31-23A		
652038	F2	55-44			703092	F3	14-184		1	703677	D3	31-24A		
660904-1	F3	35-72	55		703093	F3	21-22							
660904-1	F3	39-2C			703094	M1	14-383		1					
660904-1	F3	42-16			703094	M1	31-54							
660904-1	F3	52-4			703094-3	M	31-		1					
660904-1	F3	52-8												
660904-1	F3	53-3												
660904-1	F3	53-10												

Section III
Numerical Index

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PART NUMBER	REPAIR CODE	FIG & INDEX NO	ZONE NO	QTY	PART NUMBER	REPAIR CODE	FIG & INDEX NO	ZONE NO	QTY	PART NUMBER	REPAIR CODE	FIG & INDEX NO	ZONE NO	QTY
703677	D3	31-24B			703845	F3	32-18C			704115	D3	57-		
703677	D3	31-24C			703846	F3	31-9F		7	704176	M1	14-378D		1
703677	D3	31-24D			703846	F3	31-11F			704176	F1	31-68		
703677	D3	32-10A			703846	F3	31-15F			704193	M1	14-378A		1
703677	D3	32-11A			703846	F3	32-10F			704193	M1	31-77		
703677	D3	32-12A			703846	F3	32-11F			704193-3	M	31-		
703677	D3	32-13A			703846	F3	32-17F			704194	M1	31-78		1
703677	D3	32-17A			703846	F3	32-18F			704194-3	M	31-		1
703677	D3	32-18A			703876	M1	14-378B			704200	F3	14-236		2
703677	D3	57-			703876	M1	31-62C		1	704341	F3	14-190		4
703679	X1	31-		1	703876	M1	32-45			704341	F3	14-239		
703679-11	X1	31-		1	703876-3	M	32-		1	704341	F3	30-8		
703680	F1	31-		1	703878	M1	31-56		1	704341	F3	31-40		
703680	F1	53-1			703878-3	M	31-		1	704343	F3	30-18		4
703680-11	F1	31-		1	703879	M1	31-81		1	704343	F3	30-28		
703680-11	F1	53-1			703879-3	M	31-		1	704344	F3	30-48		
703684	X1	32-9		1	703883	M1	32-51		1	704345	F3	30-21		25
703684-11	X1	32-9		1	703883-3	M	32-		1	704345	F3	30-31		
703685	F1	21-29		1	703884	M1	32-58		1	704345	F3	30-49		
703685	F1	32-			703884-3	M	32-		1	704364	F3	14-291		1
703685	F1	53-7			703885	M1	31-41A		1	704386	F3	24-165		3
703685-11	F1	32-		1	703885-3	M	31-		1	704386	F3	31-118		
703685-11	F1	53-7			703935-5	F3	28-		1	704395	M1	31-81A		1
703689	F2	31-11		4	703951	F3	14-183		1	704395-3	X	31-		1
703689	F2	31-30			703953	F3	28-		1	704396	M1	31-81B		1
703692	X2	31-39A		1	703954	F3	28-		4	704396-3	X	31-		1
703692-11	X2	31-29A		1	703955	F1	28-38C		1	704397	M1	32-45A		1
703704	M1	32-50		1	703958-3	F3	30-45		2	704397-3	X	32-		1
703704-3	M	32-		1	703958-5	F3	30-19		4	704399	M1	32-51A		1
703706	M1	32-36		1	703958-5	F3	30-29			704399-3	X	32-		1
703706-3	M	32-		1	703959-3	F3	30-46		2	704400	M1	32-51B		1
703709	M1	32-43		1	703959-5	F3	30-20		4	704400-3	X	32-		1
703709-3	M	32-		1	703959-5	F3	30-30			704469	F1	30-7		1
703710	M1	31-80		1	703960	F1	30-47		1	704470	F1	30-38		1
703710-3	M	31-		1	703966	F3	14-191		2	704471	F1	30-32		1
DELETED					703966	F3	31-62A			704473	F3	18-47		4
DELETED					704089	X1	31-		1	704473	F3	20-50A		
703715	M1	31-63		1	704089-101	X1	31-		1	704473	F3	22-63		
703715-11	M1	31-63		1	704089-131	X1	31-		1	704473	F3	32-96B		
703715-3	M	31-		1	704089-171	X1	31-		1	704478	F2	28-24		1
703715-5	M	31-		1	704089-21	X1	31-		1	704478	F2	28-213		
703717	M1	31-86		1	704089-231	F1	31-		1	704479	F2	28-39		1
703717-3	M	31-		1	704089-91	X1	31-		1	704480	F2	28-42		1
703719	M1	31-50		1	704090	F1	31-		1	704481	F2	28-45		1
703719-3	M	31-		1	704090	F1	53-1			704482	F2	28-66		1
703721	M1	31-49		1	704090-101	F1	31-		1	704483	F2	28-72		1
703721-3	M	31-		1	704090-101	F1	53-1		1	704484	F2	28-60		1
703725	M1	14-378D		1	704090-131	F1	31-			704485	F2	28-48		1
703725	M1	31-68			704090-131	F1	53-1		1	704486	F2	28-75		1
703725-3	M	31-		1	704090-171	F1	31-			704486-11	F2	28-75		1
703745	F1	28-38		1	704090-171	F1	53-1		1	704487	F2	28-36		1
703844-3	F3	31-9D		7	704090-21	F1	31-			704487	F2	32-110		
703844-3	F3	31-11D			704090-21	F1	53-1			704487	F2	28-69		1
703844-3	F3	31-15D			704090-231	F1	31-		1	704488	F2	28-39		1
703844-3	F3	32-10D			704090-81	F1	31-		1	704489	F1	28-39		1
703844-3	F3	32-11D			704090-91	F1	53-1			704489-11	F1	28-39		1
703844-3	F3	32-17D			704094	X1	32-9		1	704490	F1	28-42		1
703844-3	F3	32-18D			704094-121	F1	32-9		1	704490-11	F1	28-42		1
703844-5	F3	31-9E		7	704094-21	X1	32-9		1	704491	F1	28-45		1
703844-5	F3	31-11E			704094-31	X1	32-9		1	704491-11	F1	28-45		1
703844-5	F3	31-15E			704094-51	X1	32-9		1	704492	F1	28-66		1
703844-5	F3	32-10E			704094-81	X1	32-9		1	704492-11	F1	28-66		1
703844-5	F3	32-11E			704095	F1	21-29		1	704493	F1	28-69		1
703844-5	F3	32-17E			704095	F1	32-			704493-11	F1	28-69		1
703844-5	F3	32-18E			704095-121	F1	53-7		1	704494	F1	28-72		1
703845	F3	31-9C		7	704095-21	F1	32-		1	704494-11	F1	28-72		1
703845	F3	31-11C			704095-21	F1	53-7			704495	F1	28-60		1
703845	F3	31-15C			704095-31	F1	32-		1	704495-11	F1	28-60		1
703845	F3	32-10C			704095-31	F1	53-7			704496	F1	28-48		1
703845	F3	32-11C			704095-51	F1	32-		1	704496-11	F1	28-48		1
703845	F3	32-17C			704095-51	F1	53-7		1	704497	F1	28-75		1
					704095-81	F1	32-			704497-11	F1	28-75		1
					704095-81	F1	53-7		1					
					704115	D3	28-38							

PART NUMBER	REPAIR CODE	FIG. & INDEX NO.	ZONE NO.	QTY	PART NUMBER	REPAIR CODE	FIG. & INDEX NO.	ZONE NO.	QTY	PART NUMBER	REPAIR CODE	FIG. & INDEX NO.	ZONE NO.	QTY
704562	F2	28-209		1										
704629-3	F3	14-291B		1										
704629-3	F3	14-354B		1										
704629-3	F3	32-81A		1										
704629-3	F3	32-82A		1										
704634	F2	14-354		1										
704634	F2	32-81		1										
704634	F2	32-82		1										
704726-31	M1	31-114		1										
704728-9	M1	31-		1										
704727-31	M1	31-115		1										
704727-9	M1	31-		1										
704729	M1	31-117		1										
704729-3	M	31-		1										
704730	M1	31-116		1										
704730-3		31-		1										
704740	F1	32-109		1										
704741	F1	32-101		1										
704742	F1	32-108		1										
704743-11	F1	32-106		1										
704743-5	F1	32-		1										
704745	F1	32-106		1										
704751	F3	2-70		11										
704751	F3	2-74												
704751	F3	2-75												
704751	F3	21-37												
704751	F3	24-148												
704751	F3	21-38												
704751-3	F3	2-68		3										
704751-3	F3	21-31												
704751-3	F3	21-33												
70500	F3	2-37F		2										
70500	F3	21-27H												
71240704-1	F3	21-5		2										
712434-3	F3	21-8		1										
712434-5	F3	21-7		1										
712434-7	F3	21-4		2										
71243406-1	F3	21-6		1										
74789	F3	2-37H		2										
74789	F3	21-27K												
7604	F3	2-37E		1										
7604	F3	21-27C		1										
7612	F3	2-37H		1										
7612	F3	21-27F		1										
79LH1660-28	D3	6-39		NP										
827526	F3	33-32		1										
827526	F3	33-37		1										
827526	F3	33-41		1										
827528	F3	33-47		1										
827526	F3	33-53		1										
9512-48427	F3	23-22		1										

MANUAL DATA SUPPLEMENTS

Manual Data Supplements are issued from time to time to communicate important and urgent information concerning the equipment covered in this manual. These supplements bear an identifying number and should be filed in this Appendix.

Manual Data Supplements directly affect the data in this manual and will be incorporated into this manual during a future updating effort.

A Supplement Record is issued periodically to indicate the status of supplements issued for

this manual. The status of each supplement is indicated in the "Supplement Status" column. For active supplements, no status is entered. For incorporated supplements, "Incorporated" is entered.

Upon receipt of a Manual Data Supplement, make an appropriate reference to the supplement in the margin next to the data supplemented and enter the number, date, and subject matter of the supplement on the Manual Data Supplement Record.

MANUAL DATA SUPPLEMENT RECORD

This Supplement Record indicates the status of Supplements issued for Technical Manual R-3825-4. Supplements that have been

incorporated into this manual shall be removed from the Appendix and destroyed.

Supplement Number	Dated	Description	Supplement Status
R-3825-4-1	15 May 1969	Identifies the 558130-321 as a spares replacement part for all pneumatic control packages on engines J-2036-1 and subsequent.	Incorporated
R-3825-4-2	17 June 1969	Corrects the nut seal part number on the gimbal boot assembly.	Incorporated
R-3825-4-3	20 January 1970	Reidentifies and locates the attaching hardware at the interface of the start tank gaseous refill line with the thrust chamber manifold.	Incorporated
R-3825-4-4	20 January 1970	Adds 13 harness assemblies and related electrical connectors to cover SIVB nonrestart engines J-2046, J-2056, and J-2062.	Incorporated
R-3825-4-5	19 June 1970	Changes the closures on the start tank for the helium fill-check valve port and the vent and relief vent port to desiccator plug types.	Incorporated
R-3825-4-6	19 March 1970	Adds new heat exchanger inlet manifold filter, new helium control valve filter, attaching hardware, and usable on codes.	Incorporated

Supplement Number	Dated	Description	Supplement Status
R-3825-4-7	2 September 1971	Changes manufacturer for certain parts of the spark igniter and cable assembly.	Incorporated
R-3825-4-8	27 October 1971	Changes existing usable on codes and part number quantities and adds codes to meet the requirements of MD375 change that returns heat exchanger to single coil configuration on engines modified by MD363 change.	Incorporated
R-3825-4-9	4 May 1972	Adds electrical control assembly insulation to meet requirements of MD224 change.	Incorporated
R-3825-4-10	25 May 1973	Adds interchangeable part.	Incorporated
R-3825-4-11	21 December 1973	Adds and changes usable on codes for parts that cap the start tank refill system (ECP J2-553R1), adds the GG oxidizer bootstrap nozzle (ECP J2-670R2), and changes the usable on codes for improved electrical control assembly (ECP J2-708R3).	Incorporated